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THE HEALTH OF
THE RUNABOUT CHILD



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“Cuddles”

THE HEALTH OF THE RUNABOUT CHILD

*The Journey from Mother's Lap
to the School Gate*

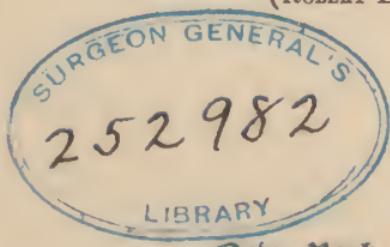
BY

WILLIAM PALMER LUCAS, A.B., M.D., LL.D.

Professor of Children's Diseases, University of California Medical School,
San Francisco; Former Medical Member of Commission for
Relief in Belgium; Former Chief of Children's
Bureau American Red Cross in France

It is good to have been young in youth, and as
years go on to grow older. To travel deliberately
through one's ages is to get the heart out of a
liberal education.

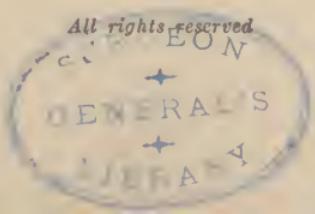
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File 9921-2441

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Set up and printed. Published March, 1923.

Press of
J. J. Little & Ives Company
New York, U. S. A.

To Nancy Jane and Mary Dean,
To Joey, and David and Junior Keen:
To Philip, and Barbara, Joeji and Ted,
To Ann and Jimmy, Jane, Harold and Ned:
To Billy, and Helen and Dorothy M, two Jameses and "Cuddles,"
And the rest of my pals who make mud-pies in puddles,
This book is affectionately dedicated by their

"UNCLE BILLY"

P. S. Dear Margaret, your name wouldn't rhyme!

U. B.

FOREWORD TO PARENTS

I do not expect any busy parents to read all of this book at once, or perhaps ever. So if you can only read one chapter, I'd recommend Chapter II. If you can take time to read two, don't miss Chapters IV and IX. If you are on a vacation and forgot to bring a novel, you might enjoy III and X.

If you are not really interested in reading any of it, be sure to read the last chapter and skip the first. You will be more cheerful.

THE AUTHOR

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N. B. All charts, tables, outlines and schedules are for the determined and the courageous to study.

FOREWORD TO DOCTORS AND NURSES

I expect you to read it all because of professional curiosity. I ask you to constructively criticise the book for the value of all the little children you and I care about.

THE AUTHOR

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FOR DOCTORS AND NURSES AND OTHERS WHO LIKE SCIENTIFIC TERMS

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N. B. In case any of these terms are not understood, it is hoped the contents of the chapters will make them clear.

THE HEALTH OF
THE RUNABOUT CHILD

THE HEALTH OF THE RUNABOUT CHILD

CHAPTER I

HIS UNCHANGEABLE PAST

Heredity

WHEN any adult human being stands for the first time upon his own legs, independent of outside support, he never denies, nor does any one else, that the occasion is an epoch-making one. He goes back over his past and how he reached his present status with keenest interest, intelligent understanding and a good deal of pride in his achievement.

When a mother stands her two-year-old on the floor before her and realizes that this child she has nourished and carried about, whose every physical need she has supplied, now no longer clings to her but is ready to run about for himself, she has, at first, a feeling of dismay. Suddenly her baby is a new child, and she finds herself looking at him with new interest and wondering about many things that his pressing, claiming babyhood had crowded out.

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When the baby is born, the average mother's first question is, "Is he all right?" meaning has he the proper equipment of "fingers and toes, two eyes and a nose" and the rest that marks normality? Satisfied of that, the bugaboo of all her fears of injurious prenatal influences vanish, and the stories she has heard of how she could mark her baby beforehand fade away. Fortunate it is that the so-called "maternal impressions" are now generally considered a myth.

If the results of mental impressions produced upon a mother *could* affect her unborn child, pregnancy would speedily end with the first child! The influences which *can* affect the baby are chiefly nutritive in character and are transmitted through the thin walls of the capillary blood vessels in the placenta.

The mother does learn early in that first year that the *injurious prenatal influences* are those communicated through the blood, such as ill-health; malnutrition; severe shock, grief or worry; diseases such as tuberculosis; poisons in the blood, such as lead, mercury and alcohol; and that the effects of such influences are general and not specific. In the case of tuberculosis, what is inherited is a predisposition, not the actual disease, and certain families therefore are much less resistant to disease. "Many of us are born *tuberculizable* though not tuberculous, and every *sanitary* advance we make toward lessening the chances of infection is just so much more insurance for the susceptible."¹ Susceptibility to disease is inher-

¹ Guyer, p. 18.

ited but not disease, and diseases having that hereditary aspect are fairly well known, such as cancer, arteriosclerosis, obesity and certain forms of rheumatism and of heart and kidney diseases.

But when a mother faces her two-year-old on his own legs, she is faced with much more than possible inherited *defects*. She realizes that she is to deal henceforth with a definite personality, "one with all the ages," "a little universe," as Darwin says, "formed of a host of self-propagating organisms inconceivably minute and numerous as the stars in heaven." Mrs. Ewing said that the most definite characteristic of a two-year-old child was that "he purred when he was pleased." But the mother watching the first steps, the first acts of freedom performed by this newly graduated child, can gain much to assist her in the environmental care of that lively "little universe" if she has some knowledge of the positive aspects of heredity. Through the definite acts of the two-year-old, the way he walks like his grandfather; sits down in a chair like his grandmother; looks at you when you say "No," just as you remember your great aunt did; the oneness of human life is brought home to the mother with peculiar vividness, and the scientific investigation of heredity and development becomes of great human interest to her.

The explanation of the whole process is simpler than of old. The discovery that every organism is a single cell or group of cells reduces the structure of all living things to a single unit. Fertilization is the union of two sex cells, the male and fe-

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male gametes, and the result is the formation of a new individual, and even in adults this double nature is never lost. Growth is gained by division of preceding cells, not by generation of new cells. As Conklin says: "The hen does not produce the egg, but the egg produces the hen and also other eggs. Individual traits are not transmitted from the hen to the egg, but they develop out of germinal factors which are carried along from cell to cell and from generation to generation."

And all this means, in very simple terms, the indestructibility of germ plasm: that the child is not a separate individual but is linked to its parents by an indissoluble material bond, as the child in turn will be linked to its posterity; and this material bond contains certain definite tendencies within itself that will affect the child's growth very definitely in certain directions, very little in others, depending upon the degree and permanence of the tendencies. Every child will be born with eyes, but their color can only be speculated upon by a process of addition and elimination over a large field of combinations of eye colors. Whether a child will be obstinate as a mule or sweet-tempered as an angel, it is still less possible to foretell. But we do know that there are general resemblances and particular differences between our children and ourselves and that we *are what we are* because we are members of a certain family, sex and race, and that what we ultimately do in life is affected by these "stable knowns."

The mind and the body grow gradually from simple beginnings, and along with the known tendencies of heredity we are face to face in that two-year-old with unlearned tendencies which make his education and progress possible. The mother's only method of knowing the child's mind or body is by investigating the way in which he carries on his activities either mental or physical, and the way in which he reacts to stimuli. Some reactions are automatic like his heart beat. His reflex to a light flashed into his eyes is the contraction of the pupils of his eyes. Some of his instincts are shown by his imagination in play; his fighting spirit to preserve his own possessions; his fears, related and unrelated to his environment; he may not be at all afraid of a dog when he is on his mother's lap patting Fido's head from the safe angle of her arm, but he may go into spasms of fear if the dog finds him alone on the floor. The child's capacities are more subtle traits to discover and are much more dependent, sometimes, upon environment to bring them forth; the ear for music, the quickness at acquiring a language, for instance.

But the child is not responsible for any of the manifestations of these so-called unlearned tendencies. Only intelligence and reason make a child responsible and those powers are arrived at gradually as a result of remembering past experiences and then adapting such experiences to new conditions. The little boy of six who announced that he meant every day to have the pudding he liked best and explained that he meant every day

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to like best the pudding he had, had come a long way on the road to reason.

Other psychological characteristics seem to be inherited in the same way as physiological and anatomical traits: literary ability, memory, calculating ability, mechanical skill, peculiarities of handwriting, moral weakness or strength, weakness or strength of will. Genius, according to Galton's statistics, runs in certain families. Dr. Frederick Adams Woods thinks that in the question of morality, heredity plays a part greater than fifty per cent, but conclusions on this point differ widely as disease is so often associated with moral degeneracy. The effect of environment upon the average child of sound body may, in determining his morality, be considerably more than fifty per cent.

We can not enter here into any exhaustive argument as to the predominating place in human life of either heredity or environment. Which is the "man Friday" of adventuring human beings we can not say, but we are convinced from undisputed evidence that when you face the child who slips off his mother's lap to the firm support of his own legs you are looking into the eyes of an individual not only two years old but five hundred thousand years old; and some knowledge of that life journey and ability to interpret the sign posts along the road will assist mightily in the help the mother and father can be to "the healthy, happy little pagan who must learn to ride, to draw the bow, to speak the truth, and to see fairies."

If the child is the child of exceptional parents,

Galton, the founder of scientific study of heredity, discovered for us what our expectations may be through his law of Filial Regression or the tendency to mediocrity, which means that if parents exhibit a certain divergence from the normal, be it mediocrity, or exceptionality, the children will follow the same course, though less so.

The Mendelian Law of Alternative Inheritance is the guide to us through that maze of human characteristics, absent when they should be present, present when they should seemingly be absent—the traits “cropping out” in children, that have been dormant for a generation, the principle of dominance in which the contrasting unit characters present in the parents do not blend in the child but one is dominant and appears fully developed, while the other drops out of sight temporarily.

Most modern studies seem to show that environment is conditioned and limited by the nature that is to be influenced. True as that may be, environment is conceded to be a stimulating and selective force, if not a creative one, and many an inborn talent or defect can be smothered down by environment. Mothers need not fear mental defectiveness if there is nothing of that kind in the family. If there is mental defectiveness or extreme mental attitudes of any kind, then the fearless attitude of “grasping one’s nettles firmly” and providing the most intelligent training possible will enable the child to get the most possible out of an already handicapped life. In such cases the early advice of the best trained medical experts ought to pre-

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vent the waste of effort and money in useless endeavors.

Deficiency in brain stuff can not be affected by training and environment, but environment can offer useful substitutes. Much fruitless discussion has always taken place over the question as to whether these useful substitutes, these *acquired* characters, can be inherited. The problem is not yet solved. The development of the desired type in the human race by careful selection is perfectly possible though difficult of accomplishment. The value of selection and its importance have been clearly demonstrated in animal husbandry, such as in the breeding of fine cattle, horses and dogs. A fine race horse manifests the effect of his careful breeding by the time he is three years old. The child will perhaps not show it until he is thirty, and therefore the connection between selective breeding is less clear, but there can be no question of the soundness of the theory. So far nature seems to be the determining factor. Mental and moral habits and standards of each generation can not be transmitted but must be acquired by each succeeding generation. There is comfort as well as pain in this, for we are thus protected from our misfortunes and our stupidities.

Every mother studying a little child usually has at the back of her mind the real basic principle of modern Eugenics: How can I better this little life? What can we, his father and mother, in our home do to make this life stronger and better and able to pass on his best? That is really Eugenics in modern society: What can society and

government, knowing the inexorable laws of heredity and the marvelous strength of environment, do to safeguard the character, the integrity and the health of the race? We face fearlessly the biological history of a child because we know that while certain characteristics are *fixed* by the indestructibility of the germ plasm, we have the opportunity of taking those inherited traits, interests and capacities and training them to express character, conduct and intellect. This fact makes optimists out of the most discouraged mothers, out of the most relentless of psychoanalysts.

We have but to face the "settled views" of a three-year-old child to realize how early "pathways" from nerve cells are made; in other words, how quickly habits are formed. The years from two to seven are the most important years of trail blazing, the years that really establish the character traits as modified by treatment. As William A. White says, "that is the golden period of educational possibilities."

The Home and the Family as the child's earliest environment have passed through threatening storms of late; the individualism which is rampant in all institutions has threatened the very existence of the family. Public education, which is one of the worthy expressions of democratic society, has taken much of the education out of the home. In ancient Greece and Rome the family was a religious institution and the mother was the high priestess with the direction of the health, happiness and education of the children in her

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hands. But the home to-day representing the environment of the child during its most formative first seven years is the factor that must be strengthened, and the parents must hold the home and family life as the essential background in the development of the child.

The emphasis placed here upon facts of heredity has for its purpose the working out of a better relation between the development of the individual child and his place in the development of the race. The parents who permit or encourage the development of the individual child at the sacrifice of the family life are only encouraging that most destructive form of individualism so gravely noticed in the social order to-day—the development of the individual without regard to the welfare of the race. “Your child is not merely an individual but an expression of life itself. The Home is the setting in which the play of the child’s interests begins. The influences from the past are of great importance and can not be changed; those that shape the first experiences are of equal importance and are capable of great modification.”¹

So these first years of the little child are of tremendous importance. His world is a world of affectionate relationships; his family love him and he loves them. While his father may be his first impression of law and authority, he may so interpret that to the child that adult years will find him a law-abiding citizen for his own welfare as well as for the welfare of others. Or the interpreta-

¹ William A. White, “The Mental Hygiene of Childhood,” Chap. III (1919).

tion may be just the opposite. Authority may be cruelly imposed and the seeds of resentment sown in the little mind that may later take expression in lawlessness. The mother's love represents to the little child care and comfort, shelter, tenderness, all of which can be developed into strength or weakness for the future adult.

President Thwing, in his work on the family, gives as Children's Rights: (1) the right to be well born; (2) the right to the personal care of both father and mother; (3) the right to be fed and clothed and cared for physically; (4) the right to learn from parents by example and precept the principles of truth, honor, purity and right living.

The fourth right emphasizes the change in the historical attitude of parent and child. It is no longer a relationship of ownership but of trusteeship. Not what a man and woman can get out of their children but what they can put into their children is the test of modern parenthood. It is indeed the so-called "Century of the Child," the century, as it were, of revaluing the relationships of parents and children; of the family as the first human beings who give to the little child his first impressions of human love and interest; of the home that reflects the emotional relations upon which a child's character is built—love and jealousy; unselfishness and selfishness; honor, truth and purity; or dishonor, untruth, impurity.

The Art of Parenthood becomes of greatest importance in this Century of the Child. The mother sees in her little child now running about his first antagonisms to her. If the mother sees in this an-

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tagonism not badness to be punished but the beginnings of the child's development which has as its legitimate goal emancipation from the parents, then she can teach him that sufficient love will help most in the immediate problem as well as in the ultimate end. Understanding of the little child is the first essential in the child's development. His ideals of his father and mother, his love, his desire to imitate these loved parents of his, all indicate the path parents must tread if the child is ever to fit into home or life outside.

CHAPTER II

NORMAL GROWTH AND DEVELOPMENT

Great Expectations

MANY mothers and nurses have no definite expectations for the runabout child. Perhaps they are absorbed with the new baby and haven't time, and as long as Tommy looks and acts more or less like other children of his age there is no real effort made of standardizing him as was made when he was a year old. If he is thin, "he takes after father." If he isn't growing rapidly, "he is like my family, going to be short." And so we have the usual phrases of the preschool period, and it often takes a severe illness to bring the family attention to Tommy again. Or he may just drift along somehow until he reaches school and a physical examination which will reveal so many defects that the mother is indignant and thinks it is all nonsense, these news ideas!

So it is really best in the long run to have definite expectations for each year in order that the child may begin his school life with as few handicaps as possible. We have fairly well standardized the expectations for the infancy period. Babies, the past five years, have leaped to the head of the procession as a nation's greatest as-

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set. They are the future of every nation. The school period has slowly evolved physical standards of growth and development, but the pre-school period, that neglected period of childhood, has suffered most from lack of intelligent study and building up of clear and proper expectations.

It is difficult to understand why that period of tremendous importance to later adult life went so long without a measuring rod. Perhaps it was caused by the confusion of development with growth. These two processes are not identical at all. A child may grow but not develop, may develop but not grow. Sometimes his physical growth hid his lack of development which denotes functional power and brain activities. Sometimes keen and rapid development overshadowed the necessary physical growth. We recognize these conditions when translated into speech. "That child is all brain, not very strong but mighty bright," said usually with pride. Or, "He is a healthy little animal, slow in some ways, but a perfect wonder to look at." And so often that most important golden age from two to six has been slurred over with stupid platitudes, and opportunities lost forever to the runabout child.

Physical Growth and Development

One of the great difficulties in the effort to understand a particular child is often the wide variation between him and the average child. The mother wants something definite from the doctor; the doctor wants to avoid discouraging compari-

sons between the definite statement of averages and the child before him, and often the child's one chance of proper standardization is lost between these two altogether worthy motives. What is the general accomplishment of the two-to-six period? Perhaps if that picture is given first, it will prepare the way for the cross sections of the child life at the different, definite years of two, three, four, five, six.

Height and weight, being in a sense visible to the average eye, can be summed up from the various studies into the general picture that from two to six years the body weight is nearly doubled, that is, increased by about twenty pounds, while the height of that period of four years is increased about three inches a year or by about twelve inches. The child's skull reaches by six years its adult circumference, and the brain inside that skull keeps pace in growth, so that at six years of age, the brain has almost reached its adult weight.

From this rapid growth of the brain comes our appreciation of the marked instability of the whole nervous system of the child, and how best to protect those growing nerve cells from disease or overwork or damage of any kind becomes a pretty important matter to those in care of children of the preschool age.

The body structure of the baby which was cartilaginous has ossified into true bony structure; the bones are elongating rapidly. At six the jaw bones have so developed that there is room for, and should be, twenty-four teeth.

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The heart almost quadruples its weight in the first five and a half years, due to the thickening of the heart muscles. To protect that rapidly growing heart from overstrain, from those most damaging effects on the heart muscles, of contagious diseases, such as rheumatic fever, diphtheria, scarlet fever, bronchopneumonia and influenza, is a most necessary precaution. "To let them have diseases young and get over them" is a fallacy we hope is forever behind us in our modern health standards.

When our six-year-old reaches school sound and healthy, he can well be proud, or his mother can, of the achievement. He has not been marking time, waiting for his turn to go to school and give mother a rest. He has been his busiest, if he is normal, and has practically completed the foundation upon which his adult physical and mental life will be built. Now this general picture of the great accomplishment of the two-to-six period should not discourage or terrify us, but stimulate us to do all in our power to create the best possible conditions of life and habits for the period and to check up the yearly gains and losses in order to assist the process of growth when it is possible to affect it, and not to find that when our child reaches his school examination he needs care or protection or help which we should have given him when he was three or four.

The safest way is to "chart" the voyage for this important journey and as "first mates" to the captains of these gallant little ships keep our eyes on the chart. These charts are only cross sections of the average child. Individual normality,

that is, the normality of an individual child, can not be accurately determined by the average, and therefore more complete analyses of these age periods with average and normal variations are appended.

At two years of age where should a child be? In simplest form, the following is an intelligent guide.

At Two Years:

Weight—Boys, 28.4 pounds; girls, 27.8 pounds.

Height—Boys, 33.1 inches; girls, 32.7 inches.

Brain—Growing rapidly; weighs 33 ounces.

Teeth—Should have 16 cut.

Muscles—Growing rapidly.

Bones—Growing rapidly.

Heart—Weighs 1.87 ounces.

Speech—Vocabulary of 100 to 500 words; two-word sentences.

Where is the runabout child at three after a year of never-still-a-minute?

At Three Years:

Weight—Boys, 33.5 pounds; girls, 31.5 pounds.

Height—Boys, 36 inches. Girls, 35.6 inches. Gain of about 3 inches.

Brain—Growing rapidly; weighs about 36½ ounces.

Teeth—Completion of the first set of teeth; 20 teeth.

Muscles—Growing rapidly; likes to skip and jump.

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Bones—Growing rapidly; strengthening spine; back flatter.

Heart—Now weighs 2.25 ounces.

Speech—500 to 1500 new words; begins to use pronouns.

At Four Years:

Weight—Boys, 36.4 pounds; girls, 35.1 pounds.

Height—Boys, 38.6 inches; girls, 38.4 inches.

Brain—Growing; weighs 39 ounces.

Teeth—Full set of milk teeth, 20 teeth.

Muscles—Growing rapidly with increasing co-ordination.

Bones—Growing rapidly, especially upper arms and thighs.

Heart—Slight increase; growth slowest from third to tenth year.

Speech—He has about 500 new words and makes complete sentences.

At Five Years:

Weight—Boys, 41.4 pounds; girls, 40.2 pounds.

Height—Boys, 41.7 inches; girls, 41.3 inches.

Brain—Now weighs 40 ounces.

Teeth—Full set of milk teeth; 20 teeth.

Muscles—Same as third year.

Bones—Same as third year.

Heart—Quadrupled its birth weight; 2.4 ounces.

Speech—The articulation is now nearly perfect and an interest in rhyming is developed.

At six years old—is he ready for school?

At Six Years:

Weight—Boys, 45.1 pounds; girls, 43.6 pounds.

Height—Boys, 44.0 inches; girls, 43.4 inches.

Brain—Contains 8/9 of adult weight; approximately 40 ounces.

Teeth—The child should have now 24 teeth, 4 of which are permanent—six-year molars, important to preserve.

Muscles—Rapidly growing; increasing correlation.

Bones—Growing rapidly; still plastic; deformities to be avoided, especially of feet and spine.

Heart—In relation to size of body is smallest at this age; weighs about 2.8 ounces.

Speech—The articulation is now perfect; the inflection of nouns and verbs nearly perfect. Child is interested in nonsense words and likes to draw his ideas. Speech defects are recognizable before six years; eighty per cent of stuttering occurs before six years.

This simple charting of some of the most tangible evidences of growth, the aspects of growth that mother and doctor together can watch and measure, ought to help prepare parents for the development during that period of the more subtle traits of character as well as for the times when susceptibility to certain disorders can be easily understood. The rapid development of brain and nerve cells during this period prepares us for the unstable nervous and emotional life of the little child and more or less regulates our expectations.

During the second year we watch all the devel-

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opment of the sense activities. We find them very keen, especially *touch*, and discrimination in touch is rapidly developing. It becomes more and more possible to focus a child's attention at two. And at three, although his attention flits easily, if given something concrete to do, we find an amazing and often disconcerting amount of concentration. It's the "do it again" period that usually sends father out for a walk! At five years we find much finer sense discriminations and a most accurate notice of sound and color; and at six years we find an eagerness to color things themselves, to taste, to improvise on the piano or a drum, if one can so designate the noise made. Curiosity seems to many a mother the sole brain content between two and six!

At *two* the child wants to investigate everything in the environment, a destructive period in the life of family possessions unless safe substitutes within easy reach are provided.

At *three*, "What is everything" begins to demand names, and the little child learns to call things and animals especially.

At *four*, "Why" is added to "What"; and insatiable and intense are entirely inadequate words to express the curiosity of *four* and *five* years in the world around him.

About *six years* of age, this curiosity adds "How" to the "What" and the "Why," and includes himself in the inquiry, and parents are confronted with questions on life and death, birth and growth, which can not be met by anything but simple truth in its most adaptable form.

During all these years memory is particularly strong and quick and mothers and nurses find it a most terrifying handmaiden of curiosity. Imitation begins early. At two years the child will imitate your voice and your smile or your scowl and by three he is imitating your moods. At four he wants literally to do the things you do. He can not always do it but he is going to try. He wants to walk holding the umbrella even though it knocks him over. He wants to carry your bag which he can't even lift and it isn't wise to let him try even though the effort is amusing, because it might strain that growing heart. At five he should not lift little brother of two. At five he is most dramatic in his imitations. He marches; he drives the motor; he is the teacher; he is mother, father; he is any animal he likes at a moment's notice; and he is absolutely literal about it. At six his imitation is the same of all adult activities, but he is not so literal about it. Perhaps the consciousness of the difference between his performance and yours is coming to him, or it may be that the development of his imagination, which has been coming right along, at five and six years has reached the strong inventive period when fanciful ideas of his own powers and actions begin to outweigh the rather tame adult activities he has heretofore been copying. At three you helped him build a castle or you put the dolls to bed, but at five and six he wants to smash the castle with his foot as a giant would, and she likes to put the dolls under the bed instead of in it, because hiding suggests so many more interesting

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things than just sleeping in an orthodox fashion.

The emotions of the little child are growing in number and expansion. Love, fear and anger are about five hundred thousand years old, so they are already in the runabout child. They are not so easily stirred at two years, or at least life is still sheltered enough not to call them actively into expression. At three, these emotions are much more easily stirred, and there isn't any will power to control them yet. About four, the little child adds keen pity to his emotions and many imaginary fears. By four, jealousy comes, and fear of animals anywhere except on the printed page, and even there you have seen a little hand move a bit to one side of the roaring lion's mouth on the page.

Reasoning begins early. At two years, the child learns results by association of experiences. Hot things burn; and the memory of once having taken milk too hot makes a struggle to get luke-warm milk down inevitable; and there can be no blame attached, rather congratulations upon the intelligence developing. At four, he reasons by guessing lots of times, trying out different associations in most ludicrous fashion; and by five, he is arguing tentatively by roundabout approaches to forbidden subjects, indirect roads to questions you thought settled in the negative; and by six years of age, the average school teacher is apt to feel that every new child, male and female, is headed for the law as a profession!

The social instincts of the child during this period are developing as rapidly as brain and

heart. At two years, the sense of ownership appears. One particular doll, however worn out, is the "*my doll*" of the time. His own chair means a lot then and isn't shared with any other child. The child would rather play with you when he is three than with any one his own age, for usually the adult is still his most familiar friend. But by four years, we see his contacts made with other children by one simple direct process—self-assertion. "The only interest I have in you now is to impress you with the fact that I am master here and owner of all you see." It's the Sinn Fein period of childhood. By four, the child seems to prefer another child to an adult and tries to build other bridges than ownership, although that is still the basis of approach. He tries to make friends by imitating his young friend's acts and moods, which is often most alarming to mother. But by six, he begins to play in a group, and "Now, you and Mary have a nice time playing by yourselves" no longer attracts as it did. Six years wants to join the gang, and well it is so with school just ahead.

APPENDIX TO CHAPTER II

NORMAL GROWTH AND DEVELOPMENT

PHYSICAL DEVELOPMENT; WEIGHT; HEIGHT; GROWTH OF VARIOUS ORGANS; TABLES

The average rate of growth of children from two to seven years is given in the appended tables compiled by various observers.

Weight.—Average gain is 5 pounds per year.

Weight doubles birth weight at 5 months.

Weight trebles birth weight at 12 months.

Seven-fold increase of birth weight at 6 years.

Height.—Average gain is 3 inches per year.

AVERAGE GROWTH

	<i>Inches</i>	<i>Pounds</i>
2d year	4	6
3d year	3½	5
4th year	2½	4
5th year	2	4
6th year	2	4

Relative growth of extremities and trunk.—Extremities normally grow more rapidly than trunk.

Normal bowing of legs often persists until the second year. The child may walk from 1 year to 18 months or later. Do not urge or restrain weight-bearing.

Head.—Growth is at first rapid, but slow after 5 years. During the second year the increase is 0.8 to 1 inch in circumference. From 2 to 5 years' growth is $1\frac{1}{2}$ inches for the 3 years. After the fifth year up to puberty the increase is slow— $\frac{1}{2}$ inch in 5 years.

Fontanelles should be closed by 17 or 18 months.

Brain has tripled its initial weight at 2 years; increased 10 per cent during second year; almost reached adult size at sixth year.

Nervous system.—The relatively large size, rapid growth and immaturity of brain and cord explain the instability of the nervous system. Nerve centers are more easily exhausted at this period than later.

Spine.—Lumbar curve first seen at 1 or 2 years; not continually present until later. At 3 years the spinous processes stand out in prominent row; back is flatter. At 6 or 7 years the spine is similar to adult type. Consolidation of bodies of vertebrae probably ends in the seventh year.

Thorax.—Chest in infancy is small as compared to the abdomen.

AVERAGE INCREASE IN CIRCUMFERENCE OF CHEST

	<i>Inches</i>
1st year	4.7
2d year	1.2
Up to 12 years	0.5

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The chest often grows rapidly, its circumference equaling that of the head by the age of 1 year. Circumference of chest at birth should never be over 0.8 to 1 inch less than that of the head. Sign of feeble development when circumference of chest has not exceeded that of the head by age of 3 years.

See tables showing comparative measurements of weight, height, and circumferences of head and chest.

Lungs.—Small in early childhood. During the first and second years the air cells have not attained proportionate capacity as in adult life.

Respiration.—More rapid in childhood than later.

RATE OF RESPIRATION FROM BIRTH TO TWELVE YEARS DURING SLEEP

	<i>Per Minute</i>
At birth	35
1 year	27
2 years	25
6 "	22
12 "	20

Abdomen.—Large in infancy; circumference about the same as chest up to 2 years, after which period it is decidedly less. Umbilicus occupies central part of the body during first and second years; in adult life its distance above the soles is $3/5$ the body length.

Heart.—Growth of heart is rapid during the first three years; nearly proportionate to that of the body; slowest from third to tenth year. Relative size of heart is slightly greater in infancy

than in later life; smallest at about seventh year. The child has large body surface proportionately to warm; must have quicker circulation, more rapid heart beat. Blood pressure is lower than in adults. Heart is relatively larger in child than lungs. In the first $5\frac{1}{2}$ years the heart almost quadruples its weight. Increase in weight of heart is due to thickening of the muscles.

At birth the heart is .89 per cent of body weight.

In adults the heart is .52 per cent of body weight.

At birth the volume of the heart is 23 c.c.

At 7 years the volume of the heart is 100 c.c.

Very little increase later.

SIZE AND GROWTH OF THE HEART

<i>Age *</i>	<i>Ounces</i>	<i>Ratio to Body Weight</i>
Birth	0.50	
1 year	1.25	
2 years	1.87	
3 " "	2.25	
7 " "	2.80	1 to 225
4 " "	5.84	1 to 280
Adult	8.50	1 to 222
		1 to 226

* The figures in infancy are from one hundred and fifty-five observations made in the New York Infant Asylum; the others are taken from Sahli. The above table is from "Diseases of Infancy and Childhood," by L. Emmett Holt, p. 552 [1922].

Pulse.—The rate is more frequent and variable than in later life. From two to six years the rate is from 90 to 105 per minute when the child is quiet or asleep. According to Vierordt the entire round of the circulation is accomplished in the

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newly born in 12 seconds; at three years in 15 seconds; in the adult in 22 seconds.

AVERAGE PULSE RATE IN HEALTHY CHILDREN DURING SLEEP OR PERFECT QUIET

	<i>Per Minute</i>
2 to 12 months	105 to 115
2 " 6 years	90 " 105
7 " 10 "	80 " 90
11 " 14 "	75 " 85

Face.—Relatively small in infancy and childhood.

Dentition.—Great variation in time of cutting teeth; rickets is often cause of delay.

At 1 year, child should have 6 teeth
At 1½ " " " " 12 "
At 2 " " " " 16 "
At 2½ " " " " 20 "
At 6 " " " " 24 " (Four of these are first permanent molars, behind posterior molars of first dentition)

At 6 years child begins to shed some of first teeth.

TIME OF ERUPTION OF THE DECIDUOUS OR FIRST TEETH

1. Two lateral incisors	6 to 9 months
2. Four upper incisors	8 " 12 "
3. Two lower lateral incisors and four anterior molars	12 " 15 "
4. Four canines (stomach teeth)	18 " 24 "
5. Four posterior molars	24 " 30 "

Feet.—The pad of fat which is on the sole of the foot during infancy is gradually absorbed during early childhood; at the fourth or fifth year the foot is similar to the adult contour.

Urine.—Relatively greater in amount during childhood because of large amount of liquids used. By two years the child should have control of the bladder; this, however, depends largely upon the training.

AVERAGE DAILY QUANTITY OF URINE IN HEALTH

	<i>Ounces</i>
6 months to 2 years	8 to 20
2 to 5 years	16 " 26
5 " 8 "	20 " 40
8 " 14 "	32 " 48

AVERAGE INCREASE IN WEIGHT, HEIGHT, HEAD CIRCUMFERENCE, CHEST BREADTH FROM BIRTH TO 7 YEARS

		<i>Weight Pounds</i>	<i>Height Inches</i>	<i>Head Cir- cumference Inches</i>	<i>Chest Breadth Inches</i>
Birth	{ Boys...	7.47	20.1	13.8	13.0
	{ Girls...	7.13	19.9	13.3	12.4
6 mos.	{ Boys...	16.0	25.4	16.5	16.6
	{ Girls...	15.5	25.0	16.5	15.6
12 mos.	{ Boys...	21.2	29.2	17.9	17.9
	{ Girls...	20.4	28.7	17.9	18.2
18 mos.	{ Boys...	22.8	30.0	18.5	18.5
	{ Girls...	22.0	29.7	18.0	18.2
2 yrs.	{ Boys...	28.4	33.1	19.1	19.5
	{ Girls...	27.8	32.7	18.3	18.2
3 yrs.	{ Boys...	33.5	36.0	19.3	20.1
	{ Girls...	31.5	35.6	19.0	19.8
4 yrs.	{ Boys...	36.4	38.6	19.7	20.7
	{ Girls...	35.1	38.4	19.5	20.5
5 yrs.	{ Boys...	41.4	41.7	20.3	21.5
	{ Girls...	40.2	41.3	19.9	21.2
6 yrs.	{ Boys...	45.1	44.0	20.0	23.2
	{ Girls...	43.6	43.4	19.8	22.8

* From "Care and Feeding of Infants and Children," by Walter Reeve Ramsey, p. 62 (1916).

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TABLE OF AVERAGE HEIGHTS AND WEIGHTS OF CHILDREN 2 TO 7 YEARS, ALSO SHOWING WEIGHTS 7 PER CENT AND 10 PER CENT UNDER WEIGHT FOR HEIGHT *

BOYS				GIRLS			
Height Inches	Average weight for height Pounds	7% under weight Pounds	10% under weight Pounds	Average weight for height Pounds	7% under weight Pounds	10% under weight Pounds	Height Inches
33 †	25.9	24.1	22.3	26.0	24.2	23.4	33 *
34 †	27.3	25.4	24.6	27.3	25.4	24.6	34 *
35 †	28.7	26.7	25.8	28.6	26.6	25.7	35 *
36 †	30.0	27.9	27.0	30.0	27.9	27.0	36 *
37 †	31.6	29.4	28.4	31.5	29.3	28.4	37 *
38 †	33.2	30.9	29.9	32.7	30.4	29.4	38 *
39	36.3	33.8	32.7	35.7	33.2	32.1	39
40	38.1	35.4	34.3	37.4	34.8	33.7	40
41	39.8	37.0	35.8	39.2	36.5	35.3	41
42	41.7	38.8	37.5	41.2	38.3	37.1	42
43	43.5	40.5	39.2	43.1	40.1	38.8	43
44	45.4	42.2	40.9	44.8	41.7	40.3	44
45	47.1	43.8	42.4	46.3	43.1	41.7	45
46	49.5	46.0	44.6	48.5	45.1	43.7	46

* From "Nutrition and Growth in Children," by William R. P. Emerson, p. 305 (1922).

AVERAGE RELATION OF WEIGHT TO HEIGHT FROM 2 TO 7 YEARS *
(Weight in house clothes; heights without shoes)

BOYS				GIRLS			
Height Inches	Weight Pounds	Increase per inch Pounds	Approx. Age Years	Height Inches	Weight Pounds	Increase per inch Pounds	Approx. Age Years
33	28.0	...	2	33	27.0	...	2
34	29.3	1.3	..	34	28.3	1.3	..
35	30.6	1.3	..	35	29.6	1.3	..
36	32.0	1.4	..	36	30.9	1.3	..
37	33.5	1.5	3	37	32.3	1.4	3
38	35.0	1.5	..	38	33.7	1.4	..
39	36.5	1.5	..	39	35.2	1.5	..
40	38.2	1.7	4	40	36.8	1.6	4
41	40.0	1.8	..	41	38.6	1.8	..
42	42.0	2.0	5	42	40.4	1.8	5
43	44.0	2.0	..	43	42.2	1.8	..
44	46.0	2.0	6	44	44.0	1.8	6
45	48.0	2.0	..	45	46.0	2.0	..
46	50.0	2.0	7	46	48.0	2.0	7

* From "Diseases of Infancy and Childhood," by L. Emmett Holt, p. 23 (1922).

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AVERAGE ANNUAL INCREASE IN WEIGHT AND HEIGHT FROM BIRTH
TO 7 YEARS *

Age	BOYS		GIRLS	
	Pounds	Inches	Pounds	Inches
0 to 1 year	14.0	9.0	13.5	8.5
1 " 2 years	6.0	4.0	6.0	4.0
2 " 3 "	5.0	3.5	5.0	3.5
3 " 4 "	4.0	3.0	4.0	3.0
4 " 5 "	4.0	2.5	4.0	2.5
5 " 6 "	4.0	2.0	4.0	2.0
6 " 7 "	4.0	2.0	4.0	2.0

* From "Diseases of Infancy and Childhood," by L. Emmett Holt, p. 22 (1922).

NORMAL PHYSICAL AND MENTAL DEVELOPMENT FROM FIRST BIRTHDAY THROUGH SIXTH YEAR

SECOND YEAR

Normal Growth and Development

Second year.—12 to 24 months.

WEIGHT (Without Clothes)

	Boys	Girls
12 months	$21\frac{1}{8}$ lbs.	20 lbs.
18 "	$24\frac{1}{8}$ "	$22\frac{3}{4}$ "
24 "	$26\frac{1}{8}$ "	$25\frac{1}{8}$ "

HEIGHT (Without Shoes)

	Boys	Girls
12 months	$29\frac{1}{2}$ in.	$28\frac{7}{8}$ in.
18 "	$31\frac{3}{4}$ "	$31\frac{1}{4}$ "
24 "	$33\frac{1}{8}$ "	$33\frac{1}{8}$ "

Average annual increase in weight of boys and girls from 1 to 2 years is between 5 and 6 pounds.

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Average annual increase in height of boys and girls from 1 to 2 years is 4 inches.

Brain.—Rapidly growing. Brain triples its initial weight at 2 years; increases 10 per cent during second year.

WEIGHT OF BRAIN	
	Ounces
At Birth	11½
1 year	27
2 years	33

RATIO OF WEIGHT OF BRAIN TO BODY WEIGHT

At Birth	1 to 8
1st year	1 to 6
2d year	1 to 14

Head.—Circumference of head, chest and abdomen often the same at 2 years. During the second year the increase is 0.8 to 1 inch in circumference. Open fontanelle at end of second year is abnormal. The proportion of face to cranium at 2 years is 1 to 6 (1 to 8 in early infancy).

HEAD CIRCUMFERENCE

	Boys	Girls
12 months	17.9 in.	17.9 in.
18 "	18.5 "	18.0 "
24 "	19.1 "	18.3 "

Teeth.—Sixteen of the 20 milk teeth are usually present at 2 years. Development of bones of the jaw takes place along with the development and eruption of the teeth. Mastication of solid food is an aid in this process; also helpful in development of speech.

At 12 months child should have 6 teeth (2 lateral central incisors; 4 upper incisors)
At 12 to 15 mos. " " " 12 " (in addition, 2 lower lateral incisors and 4 anterior molars)
At 18 to 24 mos. " " " 16 " (in addition, four canines—stomach teeth)

Muscles.—Growing rapidly.

Bones.—Growing rapidly. Extremities normally grow more rapidly than trunk. Normal bowing of legs often persists until second year. Do not urge or restrain weight-bearing. Walking is from 1 year to 18 months; may be later. Lumbar curve of spine first seen at 1 or 2 years; not continually present until later.

Heart.—Rapid growth during first 3 years; nearly proportionate to that of the body.

SIZE AND GROWTH OF THE HEART

Age	Ounces	Ratio to Body Weight
Birth	0.50	1 to 225
1 year	1.25	1 to 225
2 years	1.87	1 to 225

Pulse rate.—Rapid and variable.

AVERAGE PULSE RATE IN HEALTHY CHILDREN DURING SLEEP OR PERFECT QUIET

	Per Minute
6 to 12 months	105 to 115
2 " 6 years	90 to 105

Chest.—Often grows rapidly, its circumference equaling that of the head by age of 1 year.

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CIRCUMFERENCE OF CHEST (Measurement taken over nipple line)

	<i>Inches</i>
Birth	12.6 to 13.0
1 year	17.3 to 18.1
2 years	17.7 to 18.9

AVERAGE INCREASE IN CIRCUMFERENCE OF CHEST

	<i>Inches</i>
1st year	4.7
2d year	1.2

Lungs.—Proportionately small in early childhood. During first and second years the air cells have not attained proportionate capacity as in adult.

Respiration.—More rapid in childhood than later.

RATE OF RESPIRATION DURING SLEEP

	<i>Per Minute</i>
At Birth	35
1 year	27
2 years	25

Abdomen.—Large in infancy; circumference about the same as chest up to 2 years. Umbilicus occupies central part of body during first and second years.

Child of 2 years should be able to control sphincters; this depends largely upon training.

AVERAGE DAILY QUANTITY OF URINE

6 months to 2 years	8 to 20 ounces
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Proportionately large.—Intestines, liver, kidneys, arteries, head, surface.

Proportionately small.—Legs, lungs.

Rapidly growing.—Brain, teeth, muscles, bones, viscera.

Weak in function.—Digestive, respiratory and nervous systems.

Mental Development

Speech.—Most of the sounds which make up the language have been formed by the end of the first year. Many words can be understood before the child can speak. “Intonation, inflection, and accent are noticed by children and responded to earlier than are words.”¹ The first words are usually made clear by gestures, intonations, etc. The first single words are usually enunciated at from 10 to 12 months. Purposeful gestures are made at 12 to 18 months. If a child of 2 years makes no attempts to speak, he is either mentally defective or a deaf mute.

First are learned names of persons, then objects, verbs, adverbs, adjectives, conjunctions, prepositions, articles; last of all personal pronouns. Usually by middle or end of second year the child can make short sentences. The size of the vocabulary may vary from a score of words to fifteen hundred at 2 years of age, depending upon training and environment. Child of 2 years takes pleasure in saying over a new word to himself; invents words and persists in their use; for example calls milk “gla-gla,” etc. Speech helps in making “I-feeling” more exact.

¹ Norsworthy and Whitley, “Psychology of Childhood.”

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Faculties of the mind.—By the end of the second year the mind has acquired most of its principal faculties; progress will consist in perfecting existing functions.

Chief factors.—Sense of pain; perception that changes can be effected by child's own activity; information gained by comparing others with self. Persistence in experiments—child took off and replaced lid of can 79 times in succession. Child begins educative process of "getting into mischief." At this age children begin to show application of that rigid logic which later prompts the unanswerable questions known to parents. Obedience is one of the first moral qualities to appear. Imagination is also shown at this time; founded on memory images; free because of lack of knowledge; confers human attributes on animals and objects.

Muscle sense is in elementary condition; for example, bending of ankle and knee not attempted in kicking. Child is alert but inefficient; runs; throws.

Sight.—Color sense never definitely proved before the second year. Yellow, white and red are distinguished before green and blue. Sight is definite and focused.

Hearing.—Discriminate. Musical tones sometimes recognized between ages of 1 and 2 years. Child of 2 years may prefer one tune to another and know the name. Great individual variation in ability to recognize musical tones and to respond to them.

Touch.—Becoming keen.

Taste.—Only acutely developed in primary tastes of sweet, sour, bitter and salt.

Playing is largely imitative.

Social instincts.—Increasing sense of ownership. By end of first year the child can indicate by expression and gestures his likes and dislikes for persons and objects. In second year he has some idea of numbers. Joy, anger and fear are well shown but transitory. Memory very weak.

THIRD YEAR

Normal Growth and Development

Third year.—24 to 36 months.

Weight (without clothes) at 36 months: boys, $30\frac{3}{4}$ pounds; girls, $29\frac{1}{2}$ pounds.

Height (without shoes) at 36 months: boys, $36\frac{5}{8}$ inches; girls, $36\frac{1}{4}$ inches.

Average annual increase in weight of boys and girls from 2 to 3 years is 5 pounds.

Average annual increase in height of boys and girls from 2 to 3 years is $3\frac{1}{2}$ inches.

Brain.—Rapidly growing.

Weight of Brain from 2 to 4 years 39 ounces

RATIO OF WEIGHT OF BRAIN TO BODY WEIGHT

At 3d year 1 to 18

Head.—Circumference at 3 years: boys, 19.3 in.; girls, 19.0 in.

Teeth.—At $2\frac{1}{2}$ years a child should have all of the 20 milk teeth. Four posterior molars—24 to 30 months.

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Muscles.—Growing rapidly; movements becoming more elaborate; jumping; skipping, etc.

Bones.—Growing rapidly. Consolidation of bodies of vertebrae probably begins in third year. Spine shows great changes coming on since 18 months. Spinous processes stand out in prominent row; back is flatter; some appearance of median furrow.

Heart.—Rapid growth during first 3 years; nearly proportionate to that of the body.

SIZE AND GROWTH OF THE HEART

<i>Age</i>	<i>Ounces</i>	<i>Ratio to Body Weight</i>
3 years	2.25	1 to 225

Pulse rate.—Rapid and variable.

AVERAGE PULSE RATE IN HEALTHY CHILDREN DURING SLEEP OR PERFECT QUIET

2 to 6 years	90 to 105 per minute
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According to Vierordt, the entire round of the circulation is accomplished in the newly born in 12 seconds; at 3 years in 15 seconds; in the adult in 22 seconds.

Chest.—In the third year the average circumference of the chest exceeds that of the head. At the end of the second year the measurements of head, chest and abdomen are often identical; after this time the chest measurement increases more rapidly than the other two. Sign of feeble development when circumference of chest has not exceeded head by age of 3 years.

CIRCUMFERENCE OF CHEST

(Measurement taken over nipple line)

3 years 19.7 to 20.1 inches

AVERAGE INCREASE IN CIRCUMFERENCE OF CHEST

3d year about 1 inch

Lungs.—Proportionately small.**Respiration.**—Rapid and variable during early childhood.

RATE OF RESPIRATION DURING SLEEP

Per Minute

2 years 25

6 " 22

Abdomen.—Circumference becomes less than that of chest.

AVERAGE DAILY QUANTITY OF URINE

2 to 5 years 16 to 26 ounces

Proportionately large.—Intestine, liver, kidneys, arteries, head, surface.*Proportionately small.*—Legs, lungs.*Rapidly growing.*—Trunk, brain, teeth.*Weak in function.*—Eyes, hands, fingers, legs, nerves, digestion, respiratory system.*Mental Development***Speech.**—The child is usually able to talk connectedly the third year. Size of vocabulary varies—from 500 to 1500 new words. Begins use of pronouns. When the child first uses “me” is a

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milestone in life; usually in third year; soon followed by "I." Inflection of verbs is aid in distinguishing persons. The child's mode of oral expression, enunciation and pronunciation depend largely upon the language used around him. He imitates what he hears and endeavors to reproduce it. Some children are timid about attempting the use of new words until they are sure they can use them correctly. Others are so well able to make their wants known by gestures and pantomime that they are backward in talking. Association with other children usually overcomes this difficulty. The child is beginning to realize "selfness" more and more; he will for many years regard the world from a selfish rather than an altruistic standpoint.

Faculties of the mind.—Imitation is dominant during early childhood. Memory does not develop rapidly until the third year; however, retentiveness of memory is weak during the first four years. Imagination has fuller sway in play and all affairs; leads to apparent falsehoods. Confusion between percepts and images often arises at 3 to 6 years. The child finds it hard to distinguish between memory images and those of the imagination because of few associations with those images; explains lying. Up to 3 years, imagination is usually reproductive, not creative. Emotions are overpoweringly intense but short lived; prolonged emotional states like depression are rare. Tears now are shed from grief, not alone from anger or annoyance. Child is easily moved by all-embracing sympathy and affection.

Indifference at bereavement is due to ignorance not callousness. Timidity and fear have strong influence; arises from dislike of strangeness or novelty—child is alarmed to see clockwork toy display unsuspected quality of movement.

Senses.—Increasing discrimination. Awakening of color sense; stronger appreciation. Increasing coördination of legs, arms, eye and hand. Hand can do complex acts, such as threading beads, etc. Observation and manual dexterity become more acute.

Social instincts.—Dependence on adults; slight play with other children.

FOURTH YEAR

Normal Growth and Development

Fourth year.—36 to 48 months.

Weight (without clothes) at 48 months: boys, $34\frac{1}{2}$ pounds; girls, $33\frac{1}{8}$ pounds.

Height (without shoes) at 48 months: boys, $39\frac{1}{4}$ inches; girls, $38\frac{7}{8}$ inches.

Average annual increase in weight of boys and girls from 3 to 4 years is 4 pounds.

Average annual increase in height of boys and girls from 3 to 4 years is 3 inches.

Brain.—Still rapidly increasing in size though at a slower rate than formerly.

Weight of brain from 2 to 4 years, 39 ounces.

Head.—From 2 to 5 years growth is about $1\frac{1}{2}$ inches for the 3 years.

Head circumference at 4 years: boys, 19.7 in.; girls, 19.5 in.

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Teeth.—Full set of milk teeth.

Muscles.—Growing rapidly; increasing co-ordination.

Bones.—Growing rapidly, especially upper arm and thigh.

Heart.—Growth of heart is slowest from the third to the tenth year.

SIZE AND GROWTH OF THE HEART

Age	Ounces	Ratio to Body Weight
3 years	2.25	1 to 225
7 "	2.80	1 to 280

Pulse rate.—More rapid and variable in early childhood than in later life.

AVERAGE PULSE RATE IN HEALTHY CHILDREN DURING SLEEP OR PERFECT QUIET

2 to 6 years	90 to 105 per minute
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Chest.—Circumference of chest is now greater than that of head or abdomen.

CIRCUMFERENCE OF CHEST

(Measurement taken over nipple line)

4 years	20.5 to 20.9 inches
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AVERAGE INCREASE IN CIRCUMFERENCE OF CHEST

4th year	0.8 inch
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Lungs.—Proportionately small.

Respiration.—More rapid in childhood than in later life.

RATE OF RESPIRATION DURING SLEEP

Per Minute

2 years	25
6 "	22

Abdomen.—Size smaller in proportion to that of chest.

AVERAGE DAILY QUANTITY OF URINE

2 to 5 years 16 to 26 ounces

Proportionately large.—Intestines, liver, kidneys, arteries, head, surface.

Proportionately small.—Lungs, legs.

Rapidly growing.—Upper arm, thigh, brain still increasing, bones.

Weak in function.—Eyes, hands, fingers, legs, nerves, digestive and respiratory systems.

Mental Development

Speech.—Articulation is nearly perfect. Interest in rhyming begins. Vocabulary is increased through stories and daily conversation. This is the time to acquire good accent in foreign language; names of objects, songs and colloquial expressions in pure native accent may be taught.

Senses.—Increasing keenness and discrimination. Greater interest in music and color is shown; delicacy in sense of touch. Sensory nerves keen; motor coördinations rapidly developing.

Motor activities.—Quiet games preferred to active; dawdling; activity enjoyed for its own sake; increasing control of bodily movements.

Social instincts.—Self-assertive; selfish; quarrels over property. Emotions easily swayed; child is sympathetic and responsive. Interest is developing in other children but play is still

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largely solitary. Curiosity is intense, leading to investigation and all sorts of experimentation. Imitation is keen and imagination is developing.

FIFTH YEAR

Normal Growth and Development

Fifth Year.—48 to 60 months.

Weight (without clothes) at 60 months: boys, $38\frac{1}{8}$ pounds; girls, $36\frac{7}{8}$ pounds. First quartile of weight gained before 5 years for either sex.

Height (without shoes) at 60 months: boys, $41\frac{5}{8}$ inches; girls, $41\frac{3}{8}$ inches.

Average annual increase in weight of boys and girls from 4 to 5 years is 4 pounds.

Average annual increase in height of boys and girls from 4 to 5 years is $2\frac{1}{2}$ inches.

Brain.—Increasing but not at such a rapid rate.

Weight of brain from 4 to 7 years 40 ounces

Head.—Circumference increases slowly after fifth year up to puberty—about $\frac{1}{2}$ inch in 5 years. Proportion of face to cranium at 5 years is 1 to 4; adult is 1 to 2.

Head circumference at 5 years: boys, 20.3 inches; girls, 19.9 inches

Teeth.—Full set of milk teeth.

Muscles.—Rapidly growing; increasing coördination.

Bones.—Rapidly growing. At fourth or fifth year, the foot is similar to adult contour; has lost the pad of fat of infancy.

Heart.—Almost quadruples its weight in first 5½ years.

WEIGHT OF HEART

At 5½ years 2.4 ounces

Pulse rate.—More rapid and variable in early childhood than in later life, gradually becoming slower and more regular.

AVERAGE PULSE RATE IN HEALTHY CHILDREN DURING SLEEP OR
PERFECT QUIET

2 to 6 years 90 to 105 per minute

Chest.—Circumference of chest increases more rapidly than that of head or abdomen.

CIRCUMFERENCE OF CHEST

(Measurement taken over nipple line)

5 years 21.3 to 22.0 inches

AVERAGE INCREASE IN CIRCUMFERENCE OF CHEST

5th year about 1 inch

Lungs.—Proportionately small.

Respiration.—More rapid in childhood than in later life.

RATE OF RESPIRATION DURING SLEEP

Per Minute

2 years	25
6 "	22

Abdomen.—Smaller in proportion to chest.

AVERAGE DAILY QUANTITY OF URINE

2 to 5 years 16 to 26 ounces

Proportionately large.—Surface, intestines, kidneys, arteries.

Proportionately small.—Lungs, legs.

Rapidly growing.—Upper arm, thigh, bones; brain still increasing.

Weak in function.—Accessory muscles and nerves; eyes, fingers, throat.

Mental Development

Speech.—Articulation perfect; inflection of nouns and verbs nearly perfect; interest in nonsense words; vocabulary increasing, child enjoys attempting the use of long words, making rhymes and nonsense syllables.

Senses.—Increasing development and finer discrimination are shown. Improvising of instrumental music and songs is a great joy at this age. Delight in vivid colors is keen. Children love to color pictures and play with colored beads and papers. They love to draw, but use little visual control, representing their own image of an object, not what the adult sees.

Motor activities.—Increasing coördination; rhythmic movements; balancing, walking on straight line, skipping, etc. Manual dexterity is increasing; increased ability in building with blocks, modeling, pasting and mechanical construction.

Mental activities.—Mentality is steadier, quicker, more alert. Great interest is shown in fables and animal tales, fairy tales and myths. Child's imagination is vivid and but little limited

by experience; he begins to make up stories of his own.

Social instincts.—The child at this age prefers child to adult but is not interested in group games. Love of emulation is evident. Increasing sense of ownership is shown. Disobedience increases; child is selfish and insistent upon having his own way, although very suggestible and easily swayed by affection. Children of five years love to pour and measure various sorts of things; this instinct affords a valuable educational opportunity. Curiosity and love of experimenting is still strong. Interest in collection of small objects. Memorizing of mottoes and Bible verses is of value.

SIXTH YEAR

Normal Growth and Development

Sixth Year.—60 to 72 months.

Weight (without clothes) at 72 months: boys, $41\frac{5}{8}$ pounds; girls, $40\frac{1}{2}$ pounds. Sevenfold increase of birth weight at 6 years.

“Weight of children at five years old will be from 34 pounds to 46 pounds with an average of 39 plus, adding 4 pounds or a little more in the course of a year. A boy is slightly heavier than a girl at this age.”¹

Height (without shoes) at 72 months: boys, $43\frac{7}{8}$ inches; girls, $43\frac{5}{8}$ inches. First quartile of height (12 inches) is gained by 14 months; second

¹“Psychology of Childhood,” by Norsworthy and Whitley, p. 280.

quartile (12 inches) is gained at slightly under 6 years, taking 56 months to gain as many inches as in first 14 months. Birth height is doubled in first 6 years.

Average annual increase in weight of boys and girls from 5 to 6 years is 4 pounds.

Average annual increase in height of boys and girls from 5 to 6 years is 2 inches.

Rate of increase in both weight and height gradually diminishes from birth, although not at an even rate. There is slight retardation in growth at about 6 years. There is usually a slighter gain in summer than in winter.

Brain.—Attained almost 8/9 of adult weight; development proceeding rapidly.

WEIGHT OF BRAIN

	<i>Ounces</i>
From 4 to 7 years	40
“ 7 “ 14 “	46
“ 14 “ 20 “	48½

Head.—After fifth year up to puberty increase in circumference is slow— $\frac{1}{2}$ inch in 5 years.

Head circumference at 6 years: boys, 20.0 inches; girls, 19.8 inches

Teeth.—First of permanent teeth are cut—“sixth-year molars”—four permanent molars behind posterior molars of first dentition. Important to preserve these. Children rarely start to lose even the lower incisors before another year. At 6 years a child should have 24 teeth, 4 of them permanent.

Muscles.—Rapidly growing; child is constantly active; increasing correlation.

Bones.—Rapidly growing; greater plasticity of bones during early childhood makes deformity a real danger. Sitting height is large relative to standing height; legs are increasing in muscle power rather than in relative length. At 6 or 7 years, spine is similar to adult type; consolidation of bodies of vertebrae probably ends in seventh year.

Heart.—In first 5½ years the heart almost quadruples its weight. Relative size of heart is smallest at about the seventh year.

SIZE AND GROWTH OF THE HEART

Age	Ounces	Ratio to Body Weight
7 years	2.80	1 to 280
Adult		1 to 226

Pulse rate.—Gradually becoming somewhat slower and more regular.

AVERAGE PULSE RATE IN HEALTHY CHILDREN DURING SLEEP OR PERFECT QUIET

	Per Minute
2 to 6 years	90 to 105
7 " 10 "	80 to 90

Chest.—In general a well developed chest is an indication of robust health.

CIRCUMFERENCE OF CHEST

Measurement taken over nipple line

6 years	22.8 to 23.2 inches
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AVERAGE INCREASE IN CIRCUMFERENCE OF CHEST

6th year	about 1 inch
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Lungs.—Small proportionately. Type of breathing in infancy and early childhood is

diaphragmatic; continues to be chiefly of this type until after the seventh year, when the costal element becomes gradually more prominent. Child of 6 needs twice as much oxygen for weight as adult. Boys of every age superior to girls in lung capacity.

Respiration.—Gradually becoming slower and more regular.

RATE OF RESPIRATION DURING SLEEP

	Per Minute
6 years	22
12 "	20

Abdomen.—Does not increase in proportion to head and chest.

AVERAGE DAILY QUANTITY OF URINE

5 to 8 years	20 to 40 ounces
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Proportionately large.—Surface, intestines, kidneys, arteries.

Proportionately small.—Lungs, legs.

Rapidly growing.—Legs, arms, chest girth.

Weak in function.—Accessory muscles and nerves; eyes, fingers, throat.

A child of 6 needs larger relative amount of food more frequently than adult. At 6 years there is less susceptibility to disease than years before 3; more as compared to resistance of children of 10 and 12 years.

Mental Development

Speech.—Oral expression is perfected; vocabulary more and more extended; interest in non-

sense words and rhyming; much individual variation depending upon environment and training. The vocabulary may contain from 2000 to 4000 words; substantives and verbs form three-fourths of entire stock of words; pronouns and irregular inflections sometimes give considerable trouble. Speech defects are recognizable before 6 years; 80 per cent. of stuttering occurs before 6 years.

Mental ability.—Child can usually state correct age and understand simple instructions and show comprehension and attention. That the child has some judgment and comparison is evidenced by ability to pick out cards of a certain shape and arrange them in a particular position. Esthetic development and discrimination shown in ability to choose prettiest of certain pictures.

Attention.—Voluntary attention not easy to give. Attention is quickly attracted by moving objects seen or heard; easily distracted; things are noticed only as they contribute to present enjoyment.

Imagination.—Both creative and constructive imagination vivid at this age. Dramatization shown in play and games.

Curiosity.—Still strong. Child propounds innumerable unanswerable questions; interested in mysteries of nature, origin of life, meaning of death and God.

Memory.—Retentiveness and rote memory are relatively good; memory image is weak and inaccurate; little ability to recall voluntarily. Logical memory scarcely developed.

Imitation.—Imitation and dramatization enter

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largely into child's games and play—dressing-up, assuming characters of people seen daily. Interest in fairy tales; child will sometimes assume characters from stories. Susceptible to suggestion; unconscious tricks of facial expression and imitation of playmates and parents are seen.

Muscular activity.—Rhythmic movement is prominent; constant activity—jumping, rolling, throwing, climbing, etc.—for enjoyment in the action itself rather than to develop skill in its performance.

Senses.—Keen development; finer discrimination; color perception is standardized. Child enjoys improvising on piano. He is eager to taste—preference for sweet flavors.

Social instincts.—Games and play are largely individual and solitary; group play is unorganized without competition. Ring games are popular. Fear, jealousy, efforts at attention-getting, emulation, manipulation are all strong at this age. Kindliness, sex instinct, certain forms of fighting are not so strong as later.

CHAPTER III

YOUR REALIZATION OF THESE GREAT EXPECTATIONS

Hygiene and Health Problems

THIS great period from two to six challenges the best in parents, nurses and doctors, and the knowledge of the physical and mental growth and development of these five important years stimulates us to seek for the best hygiene possible for the child.

The roof over his head.—One is almost tempted to say that none is better than the wrong one, as the only reason a child has for possessing a house is the amount of open air that house can offer him. His home may be but one room, but if that room is full of air and sunshine all the time, he has a splendid chance for health. Space is a valuable asset for health but only because it can be filled with air. Children have wilted cooped up in big houses because space did not mean air, although every luxury of comfort was provided. There is just one safe guide in choosing a home for children and that is to interpret every room in it in terms of air and sunshine. Children thrive in tiny city apartments if the mother is determined upon this interpretation. Fresh air

is the first essential to life and growth, and the ability to give that to our children is not a question of the size of our incomes entirely but the intelligent grasp we have of the *necessity* of supplying it and the real economy wrapped up in so doing. Fresh air and sunshine are much happier and pleasanter things to pay for than doctor's services. The ideal home and surroundings for the child are not given to us to make us miserable because we can not supply them to our children but to stimulate us to translate the ideal into our "actual" with all the intelligence we have.

We would choose a house in the country with all the out-of-doors to play in, meadows and green fields and little running brooks, or snowy wastes with frozen ponds, hills to coast on in tingling air. If we can't have that, the suburban house and small yard with air and sunshine give us just as much, if we use it rightly. If it can't be that, the city house with a small back yard can mean health and vigor, if fully utilized. If it can't be that, then the apartment roof may be available for play in the sun, and the smaller apartment with sun is better than the larger one that is sunless. The point is in this matter of housing, as in other things, that where there is a will there is usually a way, especially when the motive force back of that *will* is an intelligent understanding of the necessity of securing air and sunshine for the children.

It is true that about one-third of our population in this country lives in cities where open air and sunlight have to be paid for by the foot, but it

is also true that no houses are shut up tighter, winter and summer, than the houses in country villages. The country home has, however, the advantage of beauty in surroundings, which unconsciously affects that eager growing child's imagination and memory, however stuffy the house on the country road may be. But whatever type of housing we can supply, whether it is the ideal or the poorest of makeshifts, we *can ventilate* it. We can see that some fresh air is coming into the rooms day and night where the child is. If necessary, we can air one room at a time once a day, and we can bundle the children up warmly and let them play in the room with the windows open if no outside play space is available at the time owing to bad weather or lack of yard. A little boy in school once defined a ventilator as a small unopened window in a street car! All houses have ventilators if we will just open a window a little at top and bottom.

The runabout child gets a good deal of shutting up in stuffy rooms. It was much easier to air him daily in his baby carriage than it is at two and three and four when he is gaining in quickness and speed on his feet and does not stay "put" very long. At six, that child has the school yard open to him and often a sunny roof garden and gymnasium, but until he reaches school he is mightily in need of his "own place in the sun." If possible, let the runabout child have a little room of his own to play in with his own things on shelves in easy reach, or a part of a room, or just a play box—anything to satisfy his own

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sense of ownership and to impress him with others ownership also. If he plays inside, keep the room well aired. Air is as necessary to the little child as food, and no one lets children go hungry. The air in the room must be maintained at an even temperature and with sufficient moisture. Steam and hot-air heated houses and apartments too often prove that excessively dry heat with the sudden change to the outer air is the cause of many colds. An open fireplace in a nursery is a wonderful feature giving warmth and ventilation and an ideal spot for the bedtime story.

Sunshine in the open air is childhood's greatest ally. To keep the normal child healthy, give him sunshine. To help the sick child get well, give him sunshine, not by the bottle but by days' full. Tuberculosis and pneumonia, rickets, malnutrition, bronchitis and many acute infectious diseases are directly affected by the rays of the sun. Children should be gradually accustomed to direct sunshine upon their bodies and should be allowed to play outdoors with as little clothing on as possible, in white rompers with low neck and short sleeves, sandals, and light sun hat. The white or light-colored clothing allows the light rays to penetrate to the skin.

The most convincing plea for the value of sunshine for the well child during the period of great growth is actually to see the sunshine at work on the body of a sick child. In February, 1918, during the war, I visited Dr. Rollier's Sanatorium at Leysin, Switzerland, and to my surprise found

his institution crowded with children and some French and English soldiers, altogether some two thousand cases. The hillsides were dotted with the various hotels for the treatment of different types of cases. The children came from all over the world, Russia, Germany, America, France, Italy, Switzerland, etc., and the majority were suffering from bone tuberculosis. These cases were being treated by the direct rays of the sun. Dr. Rollier's method is to begin by exposing the feet of the patient first, and by slow ascending exposure of legs, thighs, abdomen, chest, back, etc., to reach the sun bath for the entire body for over an hour at a time, by the end of the first month. The body becomes pigmented in varying degrees, shading from a light brown to a rich mahogany color. As the children become accustomed to the sun, they spend the entire day out of doors with loin cloths and sun hats and sandals as their only covering. The children have their lessons, their rest periods, their games, all out of doors, and when our party was there, it was a cold winter day with winter snow crust covering the hills and we were cold in spite of our fur coats and heavy clothing. But the children, playing and working in the sun with just loin cloths and sandals, were glowing with warmth. Those lying out on their beds were even moist with perspiration.

The great impression made upon me was the fine healthy condition of the children. Their faces were bright, animated, filled with life and spirit, and not the usual passivity of the child shut up

in an institution. Their color and the tone of their muscles I shall never forget. They were so normal and healthy and their muscles were hard and beautifully rounded out. The affected areas were usually in a healthy condition, even where there were discharging sinuses. This impression of the splendid general tone of the children only confirmed my own previous personal experience with the sun treatment in California. The length of stay at Rollier's Sanatorium averages a year and a half. A point Dr. Rollier makes, and one which my own experience confirms, is that every child must be treated as an individual; that there are few routine rules. Every child has a careful regimen worked out as to diet, sleep, recreation and study, as well as the amount of direct sun exposure.

In connection with Mme. Gillet Motte, of Lyons, France, and Dr. Armand-Delille we organized a preventorium where the sun treatment was carried out at Sylvabelle on the Mediterranean. The children there were largely from the occupied area of the north of France, who were repatriated through Evian before the armistice and directly from the north after the armistice. The cases were mostly those of malnutrition, due to the poor food and hygiene these children had been forced to endure for three or four years. These children from the north showed a great retardation in growth and development, children of ten and twelve looking like children of seven and nine. After from three to six months at Sylvabelle, they would entirely recapture their nor-

mal development and growth. In countless cases the changes wrought were almost unbelievable; under their pigmented skin the connective tissue had not only recovered its elasticity and tone, but the limbs had acquired a most astonishing muscular development. Their entire bodies had beautiful symmetrical modelings, in sharp contrast to the wasted flabbiness shown when their sun treatment began.

If sun and air baths are needed by the little child, so always is the daily tub bath he has had during his babyhood. One sometimes hears a mother say, "Why, I thought she was too big now for a daily bath." If the understanding of what the care of the skin means in the health of the child is once gained, baths will never become a matter of age. The skin is not only a covering for the body and a vast organ of sensation; it is also the regulator of the heat of the body, radiating heat when the weather is hot and conserving it when the weather is cold. Besides this important function, the skin is indispensable as an organ for throwing off waste material.

Whether the tub bath shall be cold or warm ought to depend upon how the *child* reacts and not upon the prejudices of the mother. Lots of adults don't like cold baths, but that does not mean that there are not many advantages to the little child in learning to enjoy the cold water. The cold water is splendid in training the skin to react quickly to temperatures, and does much to build up a child's resistance to colds, croup, coughs, pneumonia, and even tuberculosis, the dis-

eases, in a word of the respiratory system, which are always affected by changes of temperature. But you don't introduce cold baths by plunging the child into a tub full of cold water in a cold room. The room should be between 72° and 75°, and if the child is sensitive and not vigorous, you can begin by just sponging him as he lies in bed, one part at a time and drying at once. Then try standing him in tepid water, rubbing him briskly with turkish towels before hand, and with a very weak spray give him the cool water on his chest and back, and then rub him briskly. A strong spray or shower should not be used until the child is five or six and has successfully adapted himself to the cold bath.

The warm bath is needed for cleanliness three or four times a week at bedtime or an hour before in cool weather, if the child sleeps out of doors. An ideal time is before supper rather than after, but this is only possible where there is a warm nursery and supper there in slippers and warm wrappers, with no exposure after the bath. The bath should be at a temperature of 96° to 98° F. Temperatures either of rooms or of baths are not to be guessed at. A bath thermometer is as necessary as a room thermometer. The system of the old colored nurse is followed too often, "I knows when it's too hot cause de baby gets red, and when it's too cold she gets blue." A pure mild oil soap should be used, such as Castile. Three minutes is time enough for splashing and swimming after all important spots have been washed carefully, then a dash of cold water to close the pores and

prevent colds, a brisk rubbing dry, and into bed he goes!

The runabout child can be taught a great deal in the care of himself in his daily baths. He has his own towels and wash cloth and they are kept clean by boiling and sunning them regularly. His morale about using his own things is built up during these years, and can be weakened and entirely smashed by seeing us grab father's towel to rub him with because we have forgotten to get out his clean one before we started the bath, and we argue it is more important to get him dry than to go after his own towel. We have only ourselves to blame if later we find marks of his grimy little hands all over the guest's towels! And he should be taught to wash his own hands before eating surely and after each visit to the toilet. This has to be done often at the expense of the "looks" of the washstand, as washing hands, when one stands on a box to reach and chasing slippery soap around, with the water running hard and fast, is a fascinating game, but it is the only way to learn, and even though results are not perfect, pride can be developed that way. In a family group, rivalry is a spur to effort. But care of the skin is taught by the daily bath, be it just brisk rubbing with a dry towel, or an oil rub, or the cold or warm bath.

Just as important as one's own towel is one's own hair brush and comb. The hair should be kept clean by shampoo once or twice a week with warm water and application of a pure soap made into jelly by boiling a piece of Castile soap and

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straining it. When it is cool, rub it gently but well into the scalp and cleanse by thorough rinsing in water pleasantly warm at first and then cooled in each successive rinsing until quite cold. In warm weather, the hair may be dried in the wind and sunshine; in cold or stormy weather, it should be rubbed and brushed dry. Wash the combs and brushes often, and always at time of shampoo, so that the impression of the necessity for having everything clean will sink in. The shampoo should be made a pleasant performance for the child and can be, if a little care about "soap in the eyes," and water the right temperature, giving the child some coöperative part to play, like holding the spray, is taken. It really saves time in the end to make a child like all the necessary parts of the personal hygiene he is learning at this age, because he will never carry it out himself later, if he has not been really interested in it.

It is infinitely more important to have hair clean than curled. If the hair is naturally curly, praise be, enjoy it and let's not make the child vain about it; but if the hair is straight, make the most of it, and the result will be much better for the child. Straight hair can be as becoming to a child as curly, if in brushing or cutting it or arranging it care is taken; the clean shining hair of a little child, full of color and vitality, is beautiful whether it be curly or not. A little sweet almond or olive oil rubbed into the scalp after a shampoo is good for the growth of the hair and is also helpful in encouraging the tendency to curl.

The little child's eyes can best be guarded by

the grown-ups during this period. The children watch the way in which we use our eyes and imitate us freely. The little child from two to six of course uses his eyes entirely in the daylight and is not to use his eyes even in looking at a book full of pictures in artificial light. Children should be kept from rubbing their eyes, from staring at strong lights, from the flickering light of moving pictures, and from doing any eye work in a poor light. The eyes during this period are adjusting themselves to the child's demands and environment and should be spared fatigue of any kind. The books and blocks of this period should be printed on soft yellow paper without glaze and with printing large and easy to grasp at a glance. The child gives longer to his reading of a word or letter than an adult, and for that reason the eyes tire more readily. This is often the reason a child seems to lack concentration when he does not seem to hold his interest very long in the book he has been insisting upon looking at with us. It is often the natural eye fatigue that makes him turn to something else.

Of course the eyes must be kept clean by a daily wash with a boric acid solution. "Chasing away the sandman" helps to make cleansing the eyes part of the game. Any abnormality in the eyes should have immediate care. The condition of squint is often clearly marked in babies five and six months old and should receive early treatment, as squint is not a normal condition and does not right itself. After illnesses such as measles or scarlet fever great care should be taken that the

child does not overstrain the eyes. If any sudden irritation or discharge appears, the doctor should be consulted to avoid infection which if untreated might result in blindness.

A child's ears are just as important as his eyes, and the neglect of earache or a discharging ear can be fatal in resulting complications. Acute inflammation of the ears, if neglected, can result in permanent deafness or may spread to that dread infection of the middle ear and mastoid involvement that end fatally in many instances. Beyond the necessary simple cleansing of the child's ears with a soft twisted bit of cotton cloth or absorbent cotton, the mother should attempt little, as even an overaccumulation of wax had best be removed by an expert.

The best protection to the runabout child's ears is to guard the avenues of approach, his throat and nose. Those two filters of dust and disease must be kept clean and normal. Dry and over-heated rooms make the mucous membrane of the nose and throat dry and therefore make it impossible for the membranes to protect the passages. The child's nose is to be breathed through, and the most unobservant person can tell whether a child is breathing through its mouth or its nose. It is inexcusable in these days for the child to reach the school gate with his nasal passages blocked, his throat full of diseased tonsils, and the bad difficult-to-break-habit of mouth breathing firmly established. From two to six when his brain and his nerve cells and his heart are all doing their best to grow, the most *essential* process

of that great growth, the child's breathing, is so often neglected, and you hear that stupid comment, "He'll outgrow it," over and over again. When the nasal passages are closed by adenoids, these should be removed. If the throat has present enlarged and diseased tonsils, these should be treated at once and not allowed to do their damaging effects in lowering the whole bodily resistance of the child.

By the time a child is three, he should know how to use a handkerchief by holding one nostril closed while the other is blown, and thus assist himself in keeping his nose clean and the air passages open for breathing. The cold douching of his chest and neck helps strengthen his throat. The child should be taught to rinse his throat with hot soda water or cold salt water but never to gargle as that is too violent a process and threatens the approach to the ears.

Mouth breathing has an immediate effect upon the teeth, causing prominent and crooked upper teeth and a narrow arched palate.

School statistics of the dental defects of six-year-olds sustain the remark of one child, "Why do I have to brush my teeth when they are falling out anyway?" Many dentists by indifference have more or less sustained this attitude and have contributed to the neglect of the first twenty teeth and the six-year molars, making the school age much more difficult. The runabout child at three should be taken at least once in three months to a dentist accustomed to children's work, and a cleansing, examining treatment given.

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The ultimate possession of a strong set of teeth is largely a matter of right living during the first five or six years of life, for after a tooth has "come through" there is very little improvement of it possible. The critical time is while the tooth is forming. This is the basis of the care of the first teeth while the permanent ones are being formed. The twenty milk teeth present at the end of the second year must serve the little child until the sixth or seventh year and the appearance of the permanent teeth. These first teeth must be kept clean and free from decay. Well chosen mixed diet helps most in forming sound teeth. Hard food that requires chewing, like toast, crackers, zwieback, should be given as early as possible to provide exercise for jaws and teeth. The habit of washing down solid foods with the glass of milk or water is a bad one, as it destroys the value of solid food as a chewing agency. Chewing is one of the important cleansing measures and prevents much of the straightening work later. The toothbrush cleansing by vigorous brushing up and down must be supervised at this age of two to six, and only eternal vigilance can accomplish the keeping of the little child's mouth as sanitary as possible.

The effects of such diseases as rickets and mal-nutrition upon the teeth of this period will be discussed later under the diseases of the period.

Sleep in the little child in the majority of cases is not a matter of temperament or peculiarity. This is often given as our excuse for failing to

train the child in proper sleeping habits. The complexity and rush of modern life is not only affecting the adult but is reflected in the children. There is a minimum amount of sleep for physically fit children and any less amount is dangerous for the active child.

MINIMUM AMOUNT OF SLEEP FOR CHILDREN

			Hours
From	1 to	2 years	13
"	2 "	4 "	12
"	4 "	6 "	11
"	6 "	10 "	10
"	10 "	14 "	9

Most normal active children take more sleep than that indicated, but owing to the great importance of sleep in the little child's life the minimum amount is here stressed.

The runabout child is in constant action either in play or physical exercise of some kind, and brief intervals of rest after any particular exertion find him all rested and ready for the next activity. The normal tire of a child is not fatigue. Fatigue is caused when the normal sleep is broken and the little child fails to react to the rest period. Then his exertion is not replaced by strength gained in sleep or rest, and he fails to gain in weight or to develop normally. Rest must be taken though sleep is not always accomplished. All growing children should have a rest period of an hour in the afternoon as well as the ten or twelve hours of sleep at night. Sleep in a well ventilated room or, better still, on a sheltered sleeping porch in a comfortable bed with warm

light coverings or sleeping bags is as essential to growth and health as food.

There are important aids to good sound sleep for the children. Complete evacuation of the bowels every day and a clear nose and throat passage are essential. A quiet, dark sleeping room or porch, dark in the sense that no artificial light should be there, is conducive to rest. Many mothers object to the early bed hour especially during the hot weather when the process of darkening the room often shuts out much of the air, and this is the reason for a late bed hour for many little children. Sleep is not dependent upon darkness, if the little child is trained, as the afternoon nap of the runabout child shows. The problem of sleep is solved by training the sleeping habits of little children—quiet, bodily comfort, fresh bed to himself, proper coverings, and the question of whether it is light or dark is quite secondary. Often children will not go to sleep because of overfatigue. It is not then a question of "too early to put him to bed," but he is too tired, and a restlessness which is an early symptom of overfatigue keeps him awake.

One of the most trying disturbances of sleep is the bed-wetting habit. This should not be allowed to continue because a child is little. The habit can be broken by a little care and patience just as a child is trained not to wet his clothes. By bringing a little child in from his play once or twice a day and teaching him to exercise a voluntary control of his bladder by urinating at the commands of "Start, stop, start," the control he

lacks when he is asleep can be established. He can be helped very much by giving him no fluid to drink after four o'clock or three or four hours before going to bed. During the night take him up once or twice according to the time in which the child wets the bed, and after thoroughly waking him let him urinate. The entire problem, unless disease is present, is a matter of mental suggestion and the training of his voluntary control of his bladder which can be done in a short time by anticipating his involuntary wetting of the bed and by the above method of causing the child to urinate voluntarily. A few nights of careful attention by the mother or nurse will train the usual case. Any prolonged persistent bed-wetting should be medically supervised.

The clothing of the little child, as of all children, should not be too heavy or too tight. Light, warm, loose clothing is the ideal for children. Clothing should hang from the inside of the shoulders on wide bands, not narrow ones that cut. Often the garment is cut properly but does not fit properly, slipping off the shoulder so that the pull comes on the outside of the shoulder, which is bad. Clothing should never be tight anywhere on a little child but never at the waist line or chest line, thus interfering with the child's free abdominal muscle action or the respiratory tract.

One can not be dogmatic about the amount of clothing or the kind of clothing, but one can always insist that the measuring rod in such matters must be the child's own reactions and not the prevailing styles or customs. The battlefield of

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the "short socks" at this runabout period is familiar to every children's doctor. Short socks in cold winter weather in cold climates or damp, changeable climates often prove unwise if the child is underweight or subject to frequent colds, or is not growing as he should be, or gets easily tired or nervous. The wiser dressing of the child under such circumstances is an even, warm covering for the whole body. But we have all been faced with the perfectly healthy hearty child, thriving under all these cold damp temperatures in short socks! All that is wise to say at that point is that it is not necessarily "because of the socks" but perhaps "in spite of the socks." With the well, strong, developing child short socks may be quite a secondary matter; with the delicate, sensitive, underdeveloped child the short socks may be a matter of primary importance. The bare knee is not the only aspect of the subject. The modern sock demands a tight elastic band around the top to keep the sock up smooth and tight, and this may have a serious effect upon the circulation. Stockings should be held up by the pull from the shoulder and not from the waist line.

The *shoes* of the child of this period are very important, as all the muscles are developing and the child's feet are adapting themselves constantly to the body weight. The only safe guide in selecting the shoe for the little child is his *own* foot, not the style or the shop. Stand a child on a sheet of white paper and draw the outline of the foot; buy the shoe that is nearest that outline in



PROPER SHOE FOR A CHILD. NOTE INWARD SWING OF FOREFOOT, NARROW SHANK, BROAD HEEL, BROAD TOE, STRAIGHT INSIDE LINE OF SHOE.



A PROPER SHOE FOR VERY YOUNG CHILDREN. NOTE ESPECIALLY THAT ITS BROADEST PART IS ACROSS THE TOE.

shape and there will be little trouble with normal feet. Shoes should be soft and pliable and neither too large nor too small. An inch leeway in length and a quarter of an inch in width is the normal fit of a normal shoe. Low broad heels and lacing

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that permits of a better fit for the foot are parts of the ideal shoes for the child.

In all these matters of general health conditions the individual child's reaction to conditions is the only safe guide; not the neighbor's children but our own, the ones whose environment we provide and whose physical and mental growth and development we know from careful study and lessons learned. The mother must have help in this problem and the child must be carefully examined by the doctor from time to time in order to prevent, if possible, the defects that are found constantly by the later school examinations. By examination, I mean a stripping of the child and thorough going-over by a competent physician. Four such examinations in the second year, three in the third year, and at least two each in the fourth, fifth and sixth years would cut down that very high percentage of preventable defects found by the school examinations at six and which increases from eight to ten years. After ten years, owing to the correction of defects in school, the percentage decreases. Such care is worth while because of its high "prevention" value. Knowledge of a little child must be kept up to date if he is to have his chance at sound health.



“Mary Dean”

CHAPTER IV

HOW HE CAN HELP

Modern Health Ideas for Children

Little Jack Horner,
Sat in the Corner
Cleaning his finger nails
His face was washed clean
His hair was combed straight
And he certainly did look great.
—B. B., 9 years old.¹

ONE of the most important aspects of our grown-up care of little children is our responsibility in the matter of really teaching them to care for themselves. Many a mother feels that she has more or less wasted her time and energy for years because her older boy and girl have to be driven to do the most ordinary things connected with their personal hygiene, and her supervision has to extend intensively over such a long period that, as many say, "I am in despair of their ever learning!" And the best intentioned of us grow careless, because of the rush and hurry of modern life, and our time *has* been wasted in a large measure if we fail to capture the little child's interest in the habits of health and hygiene which

¹ From Child Health Organization of America Rhymes.

we are forcing him to observe for his own good. How the average little child resents that phrase! *He* is not interested in doing things that are good for him. They seem so 'dull, nothing exciting ever happens as a result of eating things that are good for him.

Teddy, at five, was being urged to *want* to go to a children's party. He was not interested at all. His mother finally said, "You will like it, Teddy, there will be nice things to eat." "What?" demanded Teddy. His mother thought just in time that caution was perhaps the better part of wisdom, so she answered, with a noncommittal air, "Oh, there will be things that are *good* for you." "Well, I am *not* going," said Teddy, "it will be carrots!"

The past decade of physical examinations of the school children have forced us into a keener realization of the value of including in our care of the little children their interest in the care of themselves. No little child is interested in his health, but he is interested in what happens to himself and in doing things for himself, and we certainly are wasting our time, at least in relation to his future health, if we fail to stimulate him to build real bridges between our rules for the care of his mind and body and himself. To do this, we have in the child himself our greatest ally. This is no longer theory but fact. Many efforts for the welfare and care of children from the Federal Children's Bureau to the most isolated of kindergarten teachers in the countryside, have proved by actual experimentation with the

child himself that if they put health habits into *his* world, in *his* language, within the field of *his* imagination, and within his powers of imitation, he will build the necessary bridges between our grown-up regulations and his own expression of those in his daily life.

The Child Health Organization of America has made splendid and particular efforts to help us all to interest the child in health, as a game he can play himself, not as a form of discipline we grown-ups impose, willy-nilly. The fascinating literature published by this organization makes us all long to go back and "recapture that first fine careless rapture" when we might so easily have believed that a "health fairy" lived under the pillows of "early to beds" or on top of the scales we were weighed on. The test of these vivid appeals to the imagination of children by such methods as the Children's Health Crusade, Cho Cho, the Health Clown with his basket of vegetables, the Health Fairy with her health plays; the test of them, I say, lies in the results with the children, not in opinionated views of us grown-ups who too often distrust methods which didn't originate with us! Mrs. Peterson's Child Health Alphabet can be used at four years of age just as well as for six and that repetition impresses it the more deeply upon the child's memory.

A is for Apples
And also for Air
Children need both,
And we have them to spare

is just as effective in the pursuit of the knowledge of the letter "A" as

A is for Aunt
Who lives on the hill,
She loves little children
Who sometimes sit still

and it is infinitely more alluring to the four-year-old who may not possess an aunt and who never sits still!

Children love to be weighed and measured if they are given a *child's* reason for doing it and not our grown-up one. If the notch on the wall where we mark how tall he is and the figure on the scale bar where we see how much he weighs are related to the baked potato he ate at noon time and the glass of milk he had for supper in his own language, he is going to be interested. His world is a world of make-believe and the little child finds no difficulty in "painting his cheeks from the inside" (Chicago Bulletin of Sanitary Instruction), or making a trip to "Bathtubville" (C. H. O.).

Children, the very smallest, learn that to play a game with mother or with playmates, they must learn how to play and so they are eager to be told the things they must do. No successful teacher of games begins with "don'ts" but with the "do'es" of the game, and most of the don'ts are learned unconsciously by just playing. So in the health game the children learn the rules by giving them an interest in the positive things they must do, so vivid and interesting that there is no time in

their daily round or interest in their small heads for the things they must not do. We can not teach a little child to live if we do all his living for him. We must teach him to drive his own health engine so that he can get the most comfort, efficiency, happiness and usefulness out of it. This is just a special plea not to hold the small child on your lap all through his childhood. If you do the chances are he will spend most of his adult life sitting in some busy doctor's lap, figuratively speaking, until the weary man pushes him into a sanatorium where he can learn simple health habits he ought to have known and been interested in having at six.

It is for the creation of this interest in health subjects that organizations such as the Child Health Organization of America are presenting a vigorous and vivid educational campaign. Realizing the value of emphasizing health as an end in itself rather than a means of avoiding disease, the Child Health Organization dramatizes the positive health factors for the child in plays and health games and stories. Think how much more exciting to have a Morning Circus with Tommy Toothbrush and Sammy Soap than to go through the prosaic process of washing; and the games of the jolly Vegetable Men make the introduction of vegetables into the diet a real event!

The Rules of the Health Game as issued by the Child Health Organization have been most successful in stirring the child's own interest and appealing to his imagination by presenting health as a game he can play.

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The following are the Rules of the Health Game:—

1. A full bath more than once a week.
2. Brushing the teeth at least once every day.
3. Sleeping long hours with windows open.
4. Drinking as much milk as possible, but no coffee or tea.
5. Eating some vegetables or fruit every day.
6. Drinking at least four glasses of water a day.
7. Playing part of every day out of doors.
8. A bowel movement every morning.

CHAPTER V

HOW THE PUBLIC CAN HELP

Health Centers

Protect me—ye of larger growth,
Hear my appeal: Please take my hand
And lead me safely through the days
Of Childhood into Grown-up Land.¹
—OLIVE G. OWEN.

OUR chapter on hygiene was written for the mother who has not only intelligence to bring to her little child problem but *time*, that precious asset of real achievement. The runabout child for whom thoughtful home care, however simple and limited, is possible, does not seem to bear any direct relation to the wider public health problems. And yet the mothers of such children are dependent in the main for the protection of the health of their own children upon the protection and care of *all* children.

Our modern economic life of keen competition and little coöperation has been pursued at great expense to the child life of the world. Secretary Hoover says: "Our responsibility for children is based not alone on human aspirations, but it is also based upon the necessity to secure physical,

¹ From the Child Labor Bulletin, page 282, February, 1919.

mental and moral health and the economic and social progress of a nation. Every child that is delinquent in body, education or character is a charge upon the whole community as a whole, and a menace to the community itself. The children are the army with which we march to progress."

Under ideal conditions, a chain of supervision should safeguard the welfare of an individual from the time of conception until death, and this means, in our modern world, public as well as private effort. The mother and child must have the advice and care of a physician; and if that can not be privately supplied, then the public plan for health must make it possible for a mother to secure the advice and care of a physician for the many problems of childhood. Infant welfare has been relatively standardized and its value in positive health-promotion work shown, because the babies that have received care from such centers exhibit the effects in a very marked superiority over the others in the strength and resistance they have in meeting the diseases incident to childhood. The health centers are doing well to extend their supervision of the health of the baby to the children from two to six years of age.

True community effort begins in the community itself, not outside. As long as groups of mothers sit rather helplessly together in neighborhoods, wishing they had a health center or a health nurse or a day nursery, not realizing that the permanent establishment of any of these agencies in their neighborhood depends upon their united effort, things move slowly. Just as the health of the

individual child is built upon the intelligent expectations of the mother, so the health of the children of a community depends upon the united expectations of the mothers and fathers of that community. The community effort for health is along the lines of prevention of disease and the training of personal habits in hygiene which are essential to health.

Perhaps the public-health nurse is the first step in a community plan, and mothers may expect much from her. The nurse comes into the home to advise and help in the care of the children's diet and personal hygiene and to relieve critical situations. She can be the greatest stimulus to the neighborhoods in their expectations and demands for community health measures. To relate an individual need to a community need to the advantage of both the individual and the community is constructively to build up community life and effort, and the public-health or visiting nurse is a great educator along this line. Nursing care is the best way of teaching hygiene and the best means of gaining the confidence of mothers. Such a nurse lays the foundation stones, if she will, of the other phases of community effort.

The health center should have a doctor, a nurse or dietitian, a nurse's assistant, and a play director. The personality of this staff is of vastly more importance to the work than the surroundings or the equipment. The health center is a place where people may come to learn how to keep well, and the staff of such a center must be able to inspire others with ideals for health preservation.

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Many mothers in the past have feared the day nurseries of the time, and others have, of necessity, used them. It is well to have very definite expectations of the day nurseries. In the early days they were more or less just "dumping grounds" in which busy mothers put their little children. The care received was usually negative; the children were safe "from battle, murder and from sudden death," and this was of great comfort to the working mother. Such nurseries still exist in many places. But it was evident in the developing interest in public health that the day nursery could be made a constructive, positive force in the larger problems; and to-day the day nursery that is of value is really a health center where the children are given intelligent supervision, and the mothers using the nursery are stimulated to better care of the child. In New York the supervision of the day nurseries is under the governmental authorities. The nurseries have been well standardized and have become a powerful force in the community. In crowded districts of the community, the day nurseries may be a part of the health center or settlement.

The nursery should have fresh air and sunshine available for the children. For the little ones, a room with cribs for their daytime naps; and for the runabout child, a kindergarten and playroom with folding wall beds arranged for day beds. It should be possible with simple equipment to enforce the same rules of hygiene as in the home nursery; individual towels, tooth brushes, drink-

ing cups, brushes and combs, and clean clothing or over-aprons. Unless this is done, the day nursery may easily become a menace. All children with communicable diseases should be excluded, and a health plan for each child worked out, with monthly weighing and measuring. By careful social service work, a real bridge may be built between the home and nursery, so that standards of the home may be slowly raised and relief planned if required. Even the older children in the family may be brought within the care and guidance of the nursery by friendly oversight and advice. The National Kindergarten and Elementary College and the Mary Crane Nursery of Chicago have worked out a coöperative plan whereby the kindergarten students direct the occupations and play of the nursery children with gratifying results.

So the day nursery that is "marching" to-day is the nursery that sees in the little children whom economic necessity or human tragedy brings to them an opportunity for service in supplying complete scientific and educational care. The day nursery has no right to exist unless it offers to the little child much more than the average individual home can offer; for the nursery is undertaking to take the place of mother, and that, the child psychologists know, is not done entirely by the best doctors, the most intelligent nurse, the best trained dietitian and kindergartner, all working together in the finest of buildings. However, the day nursery can be of great value to mothers in this period from two to six because the community

in a coöperative effort is able, often, to offer better trained care than the individual mother and father can command with their own resources. The community is, or ought to be, deeply interested in its future citizens, and no period is more important from the point of view of future citizenship than that period from the baby to the school child.

Mothers may quite justly expect of the community help in the community health center for the physical care of the children of the preschool period, that time for prevention of defects and diseases which results in physically better children for entrance to the public schools, less retardation in development, and greater economy in the use of the public money.

It is time for the public as well as the doctors to ask, "What becomes of all the beautiful, plump babies?" (La Fетра.) The community must make it easy for mothers to keep the little child well. The proper care of the preschool child bears the same relation to the school child as prenatal care bears to the infant. Having passed through the dangers of infancy with the protection against environment afforded by his mother's milk, the child is suddenly forced to face new dangers and a wider environment dependent upon his increased activities.

Young children have much less resistance to contagious and infectious diseases than older children and adults, and in some instances, such as scarlet fever, measles and diphtheria, are more susceptible than the newborn baby; but the baby is usually guarded from exposure while the run-

about child is allowed to run his chances with diseases and hazards to life and limb.

Many disorders of this period are brought over from infancy, but the more important ones are acquired or become more marked. Tuberculosis is also most destructive at this time. The child's organism has outgrown the protection of immunity acquired from the mother and has not yet established its own immunity. In the State of Massachusetts one-fifteenth of the total mortality of all ages occurs among children over one year and under five years of age.

The child, therefore, who is at perhaps the most susceptible five-year period in the span of life is practically ignored; and this is usually due to the ignorance of parents. Struggles with the baby's first year do not necessarily prepare the mother for the care of the runabout child; and too often the mother does not feel the necessity of help and supervision by the doctor of the growing child because she thinks that if she has been able to bring the child through babyhood, she surely can "take care of him now." The Well Baby Clinic, now firmly established in our progressive hospitals, can easily indicate the paths ahead for the mother and teach the lesson to parents that it avails a country little to save each year one hundred thousand babies and then disregard their welfare at the most plastic, most sensitive and impressionable period of life.

The community, be it city or rural, must have standards for the care and development of the little child and must realize that public health is

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built only upon the health of the smallest, most helpless members.

The only way any community can build up a permanent public-health program is by making its future citizens really interested in the health game early. The latest effort for the preschool child by the public is the Habit Clinic formed at the Massachusetts Psychopathic Hospital for the purpose of giving to the runabout child a chance to form the proper habits of mind and body during that golden period.

But parents must play the health game as squarely as possible with their children. As Dr. Caroline Hedger says in her clever words to the parents who keep a score card of their share in the child health program, "if your child scores low along health and nutritional lines, face the facts and seek a remedy. The most accurate score of the parent appears in the whole condition of the child." The essential matter is that the child of this period has definite needs and rights which must be met, and the community must supply those needs and establish those rights, if the individual homes fails to do so. Indeed, only by coöperation with the individual homes can the public health of the community be established.

CHAPTER VI

THINGS THAT USUALLY HAPPEN

Common Diseases

WHY should the sheltered, protected little child develop disease? "What is the use of all my care when Katy gets every disease on the list?" asked a discouraged mother at a health center. These are, in a sense, difficult questions to answer because of the limitations of medical knowledge, but certain aspects of these questions can be met by a study of the factors that increase the susceptibility to disease of the little child. Our study up to this point has more or less prepared us for some of these factors. The very *helplessness* of the little child and his dependence upon others for care and food often leaves the child to the mercy of ignorance. If we fail at any vital point in his care, he has no way of protecting himself from the results of our failure.

Then, too, the little child has not acquired any protection from previous attacks of disease and he has not, as we say, acquired any resistance to certain infections. Another factor in the problem is the constant state of active growth the normal child is in. His bones and his tissues of all kinds, his organs and his various systems are

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all in a state of growth with its consequent instability, and the little child is much more readily "pushed off the track" than the grown-up whose constitution has become more stable. Then, too, certain tissues are especially susceptible, such as the lymphatic glands (such as those in the neck), the bones and the respiratory tract. Tonsils are one of the most commonly known causes of infection. Some children are especially susceptible to changes in temperature, and sudden chilling of their body surface is dangerous.

But these various factors are all valuable indicators of trouble if it exists. Any interruption of growth of any kind during this little child period that becomes definitely noticeable means that an abnormal condition has been going on somewhere in the child's body for some time. Children may differ from time to time in their desire for food, due to this perfectly normal variation in growth that is going on, but if a child's loss of appetite continues over a long period, the condition must be considered abnormal.

Nothing is more alarming to parents than the first illnesses of little children, for they seem so dreadfully sick in acute illnesses—temperatures shoot up, convulsions come on, unconsciousness is present from what seems to be "no reason at all," and the doctor finds white faces and trembling lips that are difficult to change until these alarming symptoms subside. We can remember certain facts when these crises come: that the little child because of his whole bodily instability

caused by his rapid growth is often going to have a high temperature from a slight upset; delirium, at what seems but a slight temperature, a bad vomiting attack from just a "tiny bit of tomato he picked up on the kitchen floor," and an attack of diarrhea from getting too hot and cooling off too quickly. This explanation of some aspects of alarming symptoms from slight causes is not intended to support the careless parents who from a fool kind of optimism refuse to recognize the symptoms until it is too late to do anything, but it is given for the overanxious parents who often suffer cruelly from lack of appreciation of these factors. It should not make us careless, or over-confident. Eternal vigilance is the price of life in our modern world. The same symptoms can end in a varied assortment of difficulties so that your neighbor's child may be no guide for you, and even what your own child did a month ago may be a false leader.

In the first year of life, over one half of the prevailing diseases are connected with the digestive apparatus. In the second year, the digestive troubles are less frequent and less disastrous but the much dreaded respiratory diseases predominate. Acute infectious fevers, especially diphtheria, are common. Owing to this same instability in the instance of the nervous system, children of this age have various symptoms of irritability, night terrors, bad dreams, convulsions and other exaggerated nervous conditions.

If the feeding of the baby has been improper, you are made forcibly aware of it by the usual

development of rickets in the second year with its bony deformities in extreme cases.

Dr. Josephine Baker gives eighty-one per cent of the deaths in the United States as the number resulting from contagious diseases, and eighty-five per cent of these illnesses from contagious diseases occur under five years of age. Carelessly to expose children to contagion because we feel that such diseases are the inevitable portion to be meted out to all children is almost the "unforgivable sin" of parents and nurses. Special protection from such diseases is the right of every child under six, and continued protection should be given every child over six.

Infectious diseases are caused by the entrance of germs into the body, and when a child "catches" a disease that is what happens. These germs are harbored in large quantities in the throat, mouth and nose of the patient and are spread around by the fine spray coming from sneezing, coughing and talking. It is now believed that only by this almost direct contact with one who has the disease can the infection be acquired, and that the spread of infection by means of toys, clothing and furniture is infrequent, owing to the shortness of life of the disease germs when they are outside the body. But it is possible and therefore care should always be taken.

Certain conditions which are sources of infections are easily overlooked and most difficult to correct: the unrecognized case of scarlet fever because the beginning may be so mild and extend in this mild stage over so long a period: and *car-*

riers; the persons who have the disease organisms in their bodies but who are not suffering with the disease themselves. Such persons are often the cause of epidemics of diphtheria, typhoid fever and infantile paralysis.

The bacilli of diphtheria and tuberculosis can still retain their power of infection after being dried and mingled with dust particles, and little children playing on the floor and putting articles in their mouths could become infected by such inhalation of germs; but, again, the short life of germs outside of the body is a natural protection.

Bronchopneumonia is the most serious disease of our runabout child because it is usually a complication of measles and whooping-cough and often leaves chronic changes in the lungs. This disease comes on suddenly with continuous high fever, rapid breathing and cough. It may last for several weeks or even longer as relapses are frequent and the little child is left in a weakened condition that makes him susceptible to other attacks. Most careful nursing and fresh-air treatment when the child is convalescing are just as important as early recognition of the symptoms. This is the most frequent disease of children under four years of age and during this early period causes more deaths than any other disease of childhood.

Diphtheria.—Since 1895 and the discovery of diphtheria antitoxin, diphtheria has become a controllable disease and has lost many of its terrors. If antitoxin is injected in the first hour of the disease, the percentage of recoveries is one

hundred. Therefore, every hour counts and the antitoxin should be given as early as possible. Many persons, including most newborn babies, have a natural immunity from diphtheria, but by the first year of life forty per cent, and by the second or third year sixty per cent have lost this natural immunity and are susceptible to the disease. Diphtheria is most common between two and five years, and direct infection is the cause of the majority of cases as it is a highly contagious disease. The germs are present in the saliva and the discharges of nose and throat.

In no disease except smallpox can so much be accomplished in prevention as in diphtheria. The Schick test determines natural immunity and shows susceptibility to the disease. When a case of diphtheria occurs in a family, when it is impossible to apply the Schick test, children under five should be given antitoxin at once and the sick child completely isolated from the rest. The immunity or protection from antitoxin lasts only three or four weeks. Children who show by the Schick test no natural immunity can be protected by giving a combination of toxin and antitoxin. Immunity thus produced may last from three to five years or may even become permanent. The Schick test can always determine the state of immunity.

Thousands of healthy persons carry diphtheria germs in their throats and mouths, and they transmit the germs on common drinking cups and table utensils; hence the necessity for giving every little child his own things and keeping them clean, also

protecting the child from kissing on the mouth by adoring but stupid grown-ups. Bronchopneumonia is a frequent complication in diphtheria at this early age and must be looked for.

Measles.—This disease has in the past been thought a necessary part of every child's life and not of great importance. It is the most infectious of all diseases and everybody is universally susceptible to it, because you have to acquire immunity to measles by having it! Epidemics of measles come about every two years and every child except babies under six months of age is extremely susceptible, and, if exposed to it will "catch" the measles. Measles has been called "a visitor's disease" because it is passed on from person to person; germs are given off in the sneezing and coughing of what one thinks often is a common cold in the head. Moving-picture shows, schools, nurseries and the like are prolific centers of infection. Older children bring it to the smaller children at home, and because it is known as a common disease its seriousness has been overlooked by many.

The first question the mother asks the doctor is, "Is it dangerous?" As the child has the measles then, the doctor makes as light of it as possible and still be compatible with good care, and the mother often never knows some of the real facts about measles that might have made her more alert in protecting her child. Measles is among the first ten causes of deaths during this period, and causes more deaths than typhoid fever, smallpox, syphilis, infantile paralysis and

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cerebrospinal meningitis combined. Eighty per cent of the measles deaths occur under five years. In the second year, measles causes more deaths than any other acute infectious disease except bronchopneumonia. Death from measles from the sixth month to the fourth or fifth year runs high. After this age measles is not so fatal. Therefore, children under six years of age should not have measles "thrust upon them" by our own ignorance.

Measles begins like an ordinary cold in the head, running nose, inflamed and watery eyes, sneezing with slight feverishness. About the third day small rash spots appear on the forehead and face or behind the ears on the neck and gradually spread over the entire body. This rash varies with heat. A chill air may cause it to disappear and warmth may bring it out again. The general belief is that measles is most contagious during the first day or two of sneezing and at the beginning of the rash. This lasts from five to ten days. If the child has been exposed to measles, it will be from nine to fourteen days before his own symptoms appear. And from the time these symptoms appear until the thirteenth or fourteenth day, he can give the measles to another child. Therefore, isolation is the only method of checking the spread of measles, through your family, neighborhood or school. Children who have been exposed to measles should be kept from other children for two weeks, and also from the source of their infection. Just because you think little brother has been exposed to the measles by small sister who

is quite sick with it, is no reason at all for letting them be together with the he-might-just-as-well-have-it-now attitude. Give the exposed child as much chance not to have it as you give the sick child a chance to get over it.

Again, bronchopneumonia is the most dangerous complication of measles in children under two.

Ear complications with serious mastoid inflammation occur frequently in connection with measles. The relation of measles to tuberculosis is very close, and young and delicate children with a tendency to tuberculosis should be specially protected from measles. Sensitive eyes should be protected from light or strain, and this does not mean shutting the sun out of the sick room but providing a shield for the eyes.

Scarlet fever is known as a "neighborly disease" spreading from family to family by visiting and interchange of things, and that is why it thrives mostly in villages and small cities where people have time to be neighborly! The virus of scarlet fever is carried a short distance in the air from coughing and it may be carried on clothing or by the friendly dog and cat, or the milk supply. Babies are only slightly susceptible to scarlet fever, but from babyhood until five years a child becomes steadily increasingly susceptible. After five years, the child begins to decrease in susceptibility to this disease. One attack usually gives immunity through life.

The deaths from scarlet fever are high among young children. In children under five that have

been studied, the death rate is between twenty and thirty per cent.

Scarlet fever begins usually suddenly, with headache, feverishness, sore throat and often vomiting and no interest in his usual world. Within twenty-four hours, the rash usually appears, first on neck and upper part of chest, finely spotted, evenly distributed and bright red. In severe cases in little children, convulsions may occur.

In mild cases, the rash may be faint or entirely absent. When present, it lasts from three to ten days, when it fades and peals off in scales or flakes or in large pieces which some of us remember as quite fascinating to remove! The tongue is usually whitish with bright red spots.

The symptoms of scarlet fever appear between two and six days after the child has been exposed. If no symptoms appear a week after exposure, there is little chance of its developing. The little child who is coming down with it probably can not "pass it on" until just before the appearance of the rash. The time during which the child is most capable of giving it to others is during the height of his fever period, which is usually during the third to fifth day. But the duration of the contagious period is usually about four weeks, or until all discharges from nose, throat and ears have ceased.

Children should not be allowed to be with other children for at least a month after all these symptoms have disappeared, and this is just as important in mild cases as in the most severe. A

child who has had scarlet fever should not be allowed to sleep with other children for two or three months. Children in the family who have not been exposed should be sent away. Control of this disease, prevention of epidemics of it, depends upon its early recognition, complete isolation of the case and thorough disinfection. No one but the physician and the one nursing the child should enter the room. Air and sunshine are the only safe visitors.

Ear complications are the most frequent and scarlet fever causes more permanent deafness and deaf-mutism than any other disease of this period. These complications may occur at any time during convalescence. The kidney involvement, called nephritis, often develops after mild as well as severe cases of scarlet fever, and it may develop slowly or abruptly, so that long careful supervision of convalescence is imperative.

Whooping-cough.—This disease is almost as prevalent, as contagious, and as dangerous as measles. Children are more susceptible than adults and little children are especially susceptible, as one half of the cases of whooping-cough occur during the first two years. Eighty per cent of all cases are under five years, and ninety-seven per cent of all deaths from the disease are under five years. The disease is highly fatal under six years and the protection of little children is most important.

This disease spreads by the uninfected child breathing air in which the infected child has been sneezing or coughing, which means that direct

contact is not necessary, but that a little child coming within five feet of a child who has the disease, whether the whoop has begun or not, is thereby being *exposed* to the disease.

Whooping-cough begins like a cold in the head, with bronchitis and sore throat and a dry cough which is worse at night. This stage lasts from ten to fourteen days and the child "gives" the disease to others most during this period. Then severe paroxysms of coughing develop, consisting of a series of coughs that come so quickly that the child can not get his breath between them and the coughs end in the characteristic whoop. A single paroxysm may last several minutes and end after a half dozen whoops, in vomiting and expelling, along usually with what is in the stomach, a mass of sticky mucus. These attacks increase in intensity for the first two weeks, varying from six to fifty in the course of twenty-four hours. Then the course of the disease halts and remains at that high point of intensity for about a week and then gradually diminishes. The little child has had a hard exhausting month, and needs most careful watching. After his coughing spells he is wet with perspiration and he must absolutely be protected from chilling. Bronchopneumonia is the usual serious complication that causes the high fatality of the disease.

The care of the little child must extend over the period when the acute symptoms are slowly wearing off, when the cough becomes like that of ordinary bronchitis.

A vaccine made from the organisms that cause

whooping-cough, if properly prepared and given to children who have been exposed, will, in a large percentage of cases, prevent the development of the disease. Vaccine results are doubtful after the whoop has begun.

There is no specific remedy for whooping-cough, but there is a perfectly definite procedure in the care of the little patient that will more or less determine whether he will survive the attack, and prevent his giving it to other children. After he has been exposed, he should be kept from other children sixteen days. The symptoms of the disease usually appear between the seventh and tenth day after exposure. The isolation of the child need not mean confinement indoors either before the symptoms appear or after. In mild climates or in warm weather, the child is better off out of doors but always under supervision, not only to see that he does not play with other children, but to guard him from exposure after the paroxysms of coughing. For the first week after the appearance of the whoop, a strict quarantine should be maintained as the disease is highly contagious at that period and this is better controlled indoors usually than out, but isolation from other children should continue during three or four weeks. Careful feeding and attention to bowels are most important. A fluid diet is best for children, with smaller and more frequent meals. A well-fitted abdominal support is often advisable, as it helps to prevent the vomiting and gives a support to the abdominal muscles during the hard coughing and whooping spells.

Influenza.—This is a most acute infectious disease, extremely easy to communicate to others by coughing and sneezing, laughing and talking close to other persons. The more intimate the contact the more rapid the progress of the disease. Children under five succumb most readily to an epidemic and convalescence is slow for them, as it is for adults, and great care must be taken to prevent relapses or the development of complications that involve the lungs. Isolation of the cases is most important and should be enforced from the appearance of the slightest symptom, as mild, unrecognized cases are the greatest difficulty in preventing the spread of influenza.

Common colds.—This infection is common because it is so often disregarded and the person with the cold goes merrily on his way spreading his germs with most ample and generous sneezes and coughs. When the doctor is called for serious situations, he is so often met with "well it began with just an ordinary cold and I didn't think much about it," until the whole medical profession sometimes longs to shout from the rooftops that there is no such condition as "just a cold." A child should be protected from colds as carefully as from any of these infectious diseases we have discussed because repeated colds undermine a little child's powers of resistance, and just open the doors for all sorts of serious infectious diseases. The little child who is "always having colds" is being given no adequate protection from persons suffering from colds, or he has abnormal nose and throat conditions caused by enlarged

tonsils and adenoids, or irritations resulting from dry, hot air, or smoke or fog, or he is suffering from some condition that lowers his vitality and powers of resistance, such as exposure, fatigue, improper food or constipation. When colds among little children become uncommon, the school child is going to have a better chance and parents live longer!

Tonsillitis is an acute inflammation of the tonsils from which all ages suffer, but owing to the fact that it is caused by enlarged or diseased tonsils or adenoid tissue, it is most frequent among little children who have not yet had such conditions successfully treated or removed. Acute inflammation of the tonsils occurs regularly in diphtheria, scarlet fever and measles. The most frequent form of tonsillitis is follicular, and many children will have attacks of it from slight exposure. Children with a rheumatic tendency are more susceptible to this acute tonsillitis, and the heart should be watched on account of this connection. The little child should be kept from the other children during his acute symptoms of pain and swelling of tonsils and the slight fever that sometimes accompanies the attack which is usually mild and short and without danger to life. Permanent enlargement of tonsils, which may appear about the third year, should be treated or removed if possible, as their presence in a child's throat is infinitely more dangerous to the life and well-being of the child than the risk of a slight operation to remove them. The presence of enlarged and diseased tonsils

increases a child's liability to contract diphtheria, is the cause often of catarrh in the tubes leading to the ear, and of deafness itself, and their presence increases all dangers if the child does contract scarlet fever, measles, diphtheria, influenza or pneumonia.

Cerebrospinal meningitis.—This disease occurs in epidemics and in isolated cases and these latter are no doubt due to carriers. Carriers may be a source of infection for months and maybe years. About fifty per cent of the cases occur in children under five years and about twelve per cent in those under one year. The disease comes on abruptly with intense headache, vomiting, convulsions, delirium and fever, and it may last from three to six weeks with rigidity and spasm of various muscles as characteristic of its course. The treatment is as early as possible use of the cerebrospinal-meningitis serum and good nursing. The early use of the serum shortens the duration and severity of the disease and saves about seventy-five per cent of the cases. Without serum treatment about seventy per cent die; with the use of the serum from fifteen to twenty-five per cent die.

Tuberculous meningitis.—This is the most frequent form of meningitis seen in young children, and it is more uniformly fatal than any other disease of early life. Holt says that in his experience forty per cent of all deaths from tuberculosis in children have been due to meningitis. It is often associated with tuberculosis of the bones and joints or lymph nodes. When there is a posi-

tive diagnosis based upon examination of the spinal fluid, the case is practically hopeless.

Mumps is usually mild in little children, taking from ten to twenty-five days to develop after exposure and making isolation necessary for three weeks, surely for one week after swelling of the glands near the ear subside. These glands may not swell until the eighth day after the disease begins. It comes on slowly with fever, drowsiness, dizziness, vomiting or diarrhea. Keeping the little patient warm and quiet and avoiding colds, and keeping up his nourishment are the only ways to avoid complications such as infection of the ear with consequent deafness or infection of the reproductive glands causing sterility later.

Chicken pox is usually a mild disease, which develops between eleven and twenty-one days after exposure. Fever, nausea, headache may accompany the eruptions on the body. The child should be kept isolated until all scabs are gone; he should be kept from scratching the scabs by cutting of finger nails and rubbing oil into the skin to lessen the itching. If this is not done, persistent sores from infected skin may result. The kidneys should be watched for any sign of complications.

Tuberculosis.—When this most dreaded disease was lifted out of the group of disasters for which we could legitimately blame our grandmothers and placed in the list for which we could blame our own ignorance or carelessness, prevention of the disease came within reach. As the lay public and the doctor realize that no human being is

doomed to have it, that it is never inherited but always acquired, the control of tuberculosis and its gradual elimination from life is in sight; everybody *can* have it, but nobody *need* have it, is a convincing slogan to-day. The reason we must bring it into the little child period is because a large proportion of adult tuberculosis is but a return of tuberculosis acquired in childhood and because most persons are infected before reaching adult life. In an old medical book of the early nineteenth century it was described as "a disease that affected elderly persons in a genteel manner causing a slow wasting away of the body. Relief was sometimes gained by breathing into a hole in the ground."

We have come a long way from such a point of view to the protection of a little child from infection. We have a comprehensive child-hygiene program, not because we want a lot of unnecessary rules observed, but because "mountains do grow sometimes out of molehills." We teach a little child to breathe through his nose because his nose is a filter and the secretions of his nose destroy germs and the tissues of his nose are usually immune to the germs of tuberculosis. Mouth-breathing becomes not only an ugly habit, but a fine chance for infections. Tonsils frequently contain tuberculosis bacilli and decayed teeth are thought to provide an entrance for germs, as do also sore or raw gums. We know now that from fifty to one hundred per cent of us have tuberculosis infection and not more than from three to five per cent of us have the disease

actively developed. That gives us two big problems in fighting this disease: first to see if care and intelligence can prevent our little child from ever receiving the germ into his system, and, if he has been exposed, to prevent the development of his infection into an active case of tuberculosis.

Human beings receive the infection from two sources, from another human being or from a cow. The germs live outside the bodies of either, from a few hours in direct sunlight to two or three years in dark, damp places. These two established scientifically proven facts make it imperative that no little child should be exposed to the dangers of living with a case of *active* tuberculosis. We can quarantine the patient perhaps, and "never let the child go near," but we can not quarantine the house-fly that can quite easily convey the germs to the child's milk, nor can we be absolutely sure of perfect sterilization of table utensils and towels, etc., used by the patient because even when we see to all that ourselves and do not leave it to nurse maids or servants, we are fallible human beings, and some slight relaxation of our vigilance will cost us dearly. There is really no safe compromise on this point, and it had best be faced in all its significance and we must realize that we have no more right to keep a well little child in a group that contains a case of open tuberculosis than we have with a case of small-pox. Only by recognition of this fact are we going to stop the spread of the infection of tuberculosis.

Therefore, every individual that is going to have the care of a little child should have a com-

plete medical examination and the necessary laboratory tests to establish their freedom from active tuberculosis. Every year I meet in my practice a tragic case where the life of a little child is lost because a nurse-maid or cook in the household has an unrecognized case of open tuberculosis.

Clean milk from clean cows is the second imperative precaution, and that means public and private demand for tuberculin-tested cows and tuberculin-tested persons who are handling the milk. One cow with tuberculosis in a dairy herd does more damage to little children in one morning's delivery of milk than can be undone in any one lifetime.

When we have met these two fundamental demands in the environment of our little child, we still have much to do; perhaps in a sense, we still have the most to do, because the eradication of tuberculosis is bound up with the control of other diseases, with better housing, with better feeding, with education, with all the problems we have discussed in this book so far.

Sir Arthur Newsholme said:

“The highest death rate in any period of life is in the first five years of life and in the first year after birth, one death out of every twenty-six from all causes is certified as due to tuberculosis. Landouzy states that twenty-seven per cent of all deaths in the first two years of life are caused by tuberculosis. Evidently in childhood there is little resistance to tuberculosis and if we are to reduce the amount of tuberculosis and save the lives of

many people, the prevention of exposure to infection during the first five years, especially the first two years of life, is of supreme importance."

Tuberculosis of the bones begins most frequently from the third to eighth year and there is special liability to tuberculous meningitis during the first five years. The infectious diseases we have discussed, especially measles, whooping-cough, influenza and sometimes those "common colds," often cause a latent tuberculosis to develop because of the great prostration and weakened bodily resistance that result. Dr. Vaughan says, I believe, quite rightly, that "could some effective vaccine for measles be found it would be a most effectual aid in stamping out tuberculosis."

Next to protection of a little child from contagion comes the importance of proper feeding—the establishment of habits of good nutrition. Underweight children must not be allowed by us to drift but should have proper and adequate diets arranged for them that will increase their bodily resistance. Open air and sunshine as the background for the little child's rest and play, sleeping and exercise, are the greatest preventive and curative agents in tuberculosis.

Infantile paralysis.—This is considered a communicable infectious disease occurring epidemically and sporadically most frequently among very young children. It does, of course, attack all ages, but it is most common during the second year of life and eighty per cent of the cases are

in the first four years of life. It is a disease of the warm season, and it spreads by contact with persons who have it or by carriers, but it is only mildly contagious, as only a few who are exposed to it contract it. In our largest epidemics the death rate has been between ten and twenty per cent. The least danger to life is in the cases of babies and very young children.

The disease comes on suddenly with convulsions, vomiting and fever and is usually followed by paralysis of some set of muscles. This condition may be permanent, or there may be partial or complete recovery, the percentage of the complete recoveries being from twenty to twenty-five per cent of the cases. All cases should be isolated for a month at least and all discharges destroyed. After the acute symptoms have subsided, massage, passive and voluntary movements, muscle training and mechanical appliances are all helpful in aiding the development to power again of the paralyzed muscles.

The general care of little children suffering from any of these acute infections is identical. The clothing worn when he was taken sick should be thoroughly cleaned. Washable garments should be boiled ten minutes and soaked in a five-per-cent solution of carbolic acid. Outer garments should be brushed and soaked in sunlight for a day or two. All bedding and linen should be cared for in carbolic solutions and boiled. All discharges from patient's mouth, nose, eyes and ears should be burned. Special disinfection of the discharges from the bowels is best. All rem-

nants of food should be destroyed by burning, and everything he uses for eating should be boiled. Books and toys impossible to sterilize by boiling should be destroyed.

The child should be isolated in the best room in the house for the purpose and not the worst one as is often the case to save disturbing the routine of other members of the family. A big, airy room with sunshine, stripped of all fixings that are unnecessary and furnished with the simplest furniture that can be kept absolutely clean, is the quickest road to recovery. The windows should be screened, the bed should be kept fresh with clean linen, and the nurse or mother should wear a washable cap and gown which she never wears out of the room, and her hands should be kept clean by washing with soap and running water. When the illness is over, the room and its contents should receive a thorough scrubbing with soap and hot water, and walls wiped down with damp cloths wrung from 1-1000 bichlorid solution. Mattress and blankets should have at least three days of sunshine in the open air with frequent turnings and a good beating. All washable bedding should be treated as mentioned before. These methods, if thoroughly carried out, are the best possible means of sterilization. When all acute infectious diseases, not just scarlet fever or diphtheria, are treated this way, "family epidemics" will be things of the past, and unnecessary exposures will be cut down to a minimum.

Acute otitis media is a disease of the ear, very frequent in early childhood but it is usually what

is known as a secondary trouble because it follows some acute infection, such as scarlet fever, epidemic influenza, measles, diphtheria or pneumonia and acute colds. Pain and fever are most constant, and the little child is extremely restless and sometimes convulsions and delirium are present. It is a rather blind disease and may be overlooked unless the ears are most carefully and repeatedly examined. Rupture of the ear-drum membrane may or may not take place, and here and there is a case without pain so that often serious mastoiditis develops apparently "without warning." Repeated attacks of otitis media in childhood are the cause of eighty per cent of chronic catarrhal deafness in later life.

Adenoid growths are usually first noticed from eighteen months to three years, and the size varies from that of a flaxseed to that of a walnut. The growths may completely block the passage from the nose to the throat and in time may cause deformities in the facial bones, the palate and the jaw. If a little child is having frequent head colds, persistent nasal catarrh, or shows obstruction symptoms, such as inability to blow his nose or breathing through his mouth constantly or only during sleep, with the resulting restlessness, difficult breathing and night terrors, adenoid growths are undoubtedly present and should be removed. Attacks of bronchitis, asthma, deafness and repeated attacks of inflammation of the middle ear are often entirely relieved by complete removal of adenoid growths. The time for the removal of these growths is best for the little

child in late spring or early summer, and they should not be removed before a child is two years old unless the symptoms become very marked and are obviously affecting the general health. Beneficial results are more apparent in little children than in older ones, but these must never be exaggerated or a mother told to expect miracles. The operation is practically without danger and striking improvement is very frequent, but children have been known to "outgrow" all these symptoms by the gradual atrophy of the adenoid tissue as they get older, or by the increase in size of the cavity containing the adenoid growth, thereby giving a child space to breathe properly in spite of them. Changes of climate beneficial to the child often enable him to get, so to speak, "on top of these symptoms." But he may do so at too grave a cost to his general health, as such symptoms as we have discussed in connection with adenoid growth certainly do not improve the child's resistance to disease.

Diseases of the heart.—It is rather a shock to many parents to find that "old age" disease, pushed back into early childhood, but it is only so in this sense, that the foundations of heart disease are often laid during this two-to-six period, because that is the period of the heart's most rapid growth and the period of greatest susceptibility to the acute infectious diseases we have discussed. Inflammatory affections of the heart are apt to follow severe tonsillitis, scarlet fever, diphtheria, measles and especially rheumatism. Very few children who have bad heart lesions before

they are six ever reach adult life in good condition, and it is because it is difficult to enforce the proper regulation of life upon the little child who does not understand and who wants to be in constant motion. But it is the only treatment—regular but limited exercise, rest periods in bed, sleep in fresh air, careful diet, protection from contagion, never any overexertion resulting in fatigue and at the same time keeping him happy. It's a big task, but it can be done!

Children suffering from congenital heart disease usually do not survive early childhood. More than half such cases do not live to be six years old and a very small per cent live to be thirty years old. The care is the same as for the chronic conditions acquired.

Diseases of Nutrition

Rickets is, we might say, in its groundwork a disease of nutrition, but it has a lot of "poor relations" such as bad housing, lack of sunlight and ventilation, dirt and lack of care. We think of rickets as a disease of little children in crowded city streets, and it is, for that is where lack of proper food is apt to be, and parents who can not command that for their children have neither fresh air nor sunlight in large quantities in their homes. But rickets can be a disease of ignorance as well as poverty, and ignorance is not confined to any one class. The disease comes on slowly and insidiously between the ages of six to eighteen months, and while it is not a fatal disease in itself,

it adds to the danger from all acute diseases of our little child and is a large factor in the mortality of the first two years.

The early symptoms are head sweating, extreme restlessness at night, constipation and bony deformities. The skull is enlarged, there is beading of the ribs and deformities of the chest; the great flexibility of the bones results in deformities of the spine and extremities. The muscles are small and poorly developed. The child affected with rickets is unable to sit, stand or walk at the usual age. Late walking is one of the most common symptoms. The pot-belly (distended) is an early symptom. Dentition is usually retarded and the formation of the teeth is affected, resulting in irregularity of shape and serrated or jagged edges of the enamel, and the growth of the little child in other ways visibly affected. A child of three years with rickets often measures four or five inches less in height than the healthy child. This disease is chronic, and recovery is gradual.

Care of diet and hygiene early is the only treatment and hygiene means all we have discussed under that subject. Sunlight is of especial value, and treatment with ultra violet rays has been known to cure. Slight deformities caused by rickets are often outgrown, but after a child is two or two and a half years old, it is more difficult to correct. When we hear that Europe is permanently crippled, the phrase has more than one meaning. Economically she can be resuscitated, but the deformities of her little children suffer-

ing from this disease of poor food and bad hygiene and from tuberculosis will take a long time to cure.

Intestinal parasites.—Roundworm is one of these parasites that is rather common between the third and tenth years. The symptoms are so vague and indefinite that the only sure diagnosis is made when the stools have been examined and the worms found. The roundworm resembles the earthworm, averaging six inches in length and pinkish gray in color. If they do not appear in the stools, the eggs may be found and recognized under the microscope. These worms may migrate into the stomach, the bile ducts or even the middle ear, so it is well to be sure, and to treat with disinfecting solutions.

Tapeworms appear in the stools and their treatment is more difficult.

Pinworms or threadworms are rather common in little children after they begin a mixed diet. They are tiny, half inch, white, threadlike worms found in large numbers in the stools, and the infection is usually confined to the lower colon and the folds of the mucous membrane around the anus. There is intense itching locally, and this irritation may lead to inability to retain the urine or too frequent urination and may in many instances be the cause of masturbation or handling of the sex organs.

Absolute cleanliness is the first essential in the treatment to keep the child from reinfecting himself. The anus should be bathed after each stool with a cleansing solution. The itching is best controlled by applying some ointment prescribed by

a physician for this purpose to the folds of the anus when the child is ready for bed. This will prevent the escape of the worms from the colon. To free the lower colon and rectum from these worms, medicated injections must be given. There are various solutions used by different physicians. These solutions should be prescribed by a physician. The efficacy of any of them depends upon the regular and careful repetition of the treatment. The whole cleansing and treating process should be repeated every second or third night. On other nights a simple saline solution may be used.

Hives, urticaria or nettle rash are usually due to some digestive upset or to an acute susceptibility to certain proteins. Large, raised blotches appear on the skin which itch constantly and give a little child considerable distress and disturb his sleep. Good bowel movements are important and careful regulation of diet with fresh air and exercise usually relieve this condition. By skin tests the doctor can determine what proteins are affecting the child, and outline a suitable diet. A little soda solution or weak vinegar dilution will usually relieve the itching.

Ring worm is a truly skin disease that is most troublesome especially when it attacks the scalp. It is caused by a fungus growth and is extremely obstinate to treatment, although curable if thorough treatment is carried on over a sufficient length of time.

Pediculosis or Head lice, Scabies or Itch, the eruptions caused by animal parasites are no re-

specter of age or heads but we ought to be able to protect our little child from such troubles by constant care or supervision of his personal hygiene. They are largely filth diseases, and filth is the result of lots of things—sometimes *war*, as the European children know.

Herpes or fever or cold sore is very common in children, occurring in acute fevers, particularly pneumonia and meningitis. It is often difficult to cure because the child picks at it before it is healed. A mild solution of boric acid or the application of a powder of zinc oxid and boric acid will heal the sore. Mittens or elbow splints should be used at night to keep the child from picking at the crusts.

Swallowing things is not a disease but a habit, as all mothers of little children know, that is often more terrifying than illness. The little child from one to four puts everything he can reach into his mouth and he lacks any fine discrimination in his choice! Parts of toys, marbles, buttons, pins and safety-pins, glass, nails, even small toy knives and forks, coins, whistles, small spools, paper clips, anything that will go comfortably into his mouth, have all been swallowed by little children and *recovered* by watchful parents without any particular distress to the child. Holt gives an instance of a safety-pin having been retained for eight months and then passed spontaneously, its presence in the stomach having been determined by X-ray two hours after swallowing. Children sometimes pull fur or shreds from blankets, rugs and clothing and swallow it, causing at times

gastric irritation, but a large part of the suffering connected with this habit is endured by the parents rather than the child.

The danger of swallowing foreign bodies lies in their entrance to the trachea and lungs, where choking, difficult breathing, chronic cough result. If the bodies are not removed, abscesses or septic pneumonia may result, which may cause death.

We have discussed here the most common diseases and disorders, not exhaustively but suggestively, and I want to add to this chapter an outline prepared by Mary L. Read in the Mother Craft Manual in 1916, an outline of action for the mother or nurse who is in a hurry to know what to do, for when symptoms of any importance occur the responsibility should be upon a doctor's shoulders and not an anxious mother's.

After a child has recovered from any attack of acute disease, he should have a thorough examination by a doctor in order to prevent the development of many serious results of infections.

SYMPTOMS OF ILLNESS AND THEIR IMMEDIATE CARE

From *Mothercraft Manual*, by Mary L. Read,
p. 338 (1916).

C (?) = Possibly contagious; isolate.

C = Contagious; child should be isolated.

1 Notify doctor.

2 Call doctor.

3 Get doctor immediately; urgent.

Discharge from nose	C (?) 1	Stupor or dullness	2
Discharge from eyes with inflammation	C (?) 1	Chills with or without fever	C (?) 2
Swollen lids, inflamed yellow discharge	C 3	Fever with languor, loss of appetite	C (?) 2
Sore throat	C 2	Nausea with fever	C (?) 2
Pain in or behind ears	1	Convulsions	3
Swollen glands in neck	1	Eruptions	C (?) 2
Persistent cough	C (?) 1	Cramps and vomiting may be poisoning	C (?) 3
Persistent lassitude	C (?) 1	Persistent pain in feet or legs	1
Loss of appetite	1	Swelling of feet and legs	2
Loss of weight	1	Black or bloody stools	2
Severe or frequent earache	2	Constipation (48 hours not yielding	
Headache with delirium	3	to home care)	1

Claylike stools	1	Injuries:
Green stools, diarrhea	3	Fall, especially of young child 3
White vaginal discharge	2	Blow on head, severe 3
Bleeding from mouth or rectum	2	Deep cut, needing stitches 3
Frequent bleeding from nose	1	Deep burn 3
Pain at urinating	1	Excessive bleeding 3
Retention of urine (24 hours)	1	Wound of rusty instrument 2
	1	Bite of animal 2

CHAPTER VII

THINGS WE DON'T WANT TO HAVE HAPPEN

Defects of the Preschool Child

THE *unnecessary* accident is the hardest of all to bear, and many parents have some bad hours with themselves when things of a serious nature happen to their children which might have been prevented. We see physical and mental defects in children all around us. We do not recognize them so quickly in our own children because of our affection and of our having grown accustomed to them. It has taken a long time to unravel the tangle of these defects, and to separate the preventable ones from the nonpreventable ones, to stop calling defects "natural" that are most unnatural; to assume definite responsibility for the defects caused by our own ignorance and unconscious neglect; to substitute constructive action for more or less pious resignation to the inevitable "will of the Lord." It has taken a long time to do this, but each year the eager students "of things as they are" convince us more readily to strive for the "things that so easily may be."

Figures may be either confusing or convincing according to the clearness of mind *behind* and *before* those figures! The examination of the

school children reveals the fact that out of twenty-two million school children in the United States, nineteen million school children are defective physically. Of these, fifteen million are defective for *preventable* reasons. These figures should not depress us but fill us with the determination that future examinations of school children will wipe out that fifteen million. Such figures are not given to move any one to tears but to stiffen us all to action. The logic of these figures is relentless. Defects do not suddenly develop on the inside of the school gate. They begin a long way down the road. Across all these defects both mental and physical, we find the trail of the diseases we have studied which are common to the little child, so that protection from disease is a large factor in our work of prevention of defects.

The commonest defects found on examination of the twenty million school children were the following:

	<i>Per cent</i>
Mental defects	1
Tuberculosis	5
Defective hearing	5
Defective sight	25
Diseased tonsils or adenoids	15 to 25
Deformed feet, spine or joints	10 to 20
Defective teeth	50 to 75
Malnutrition	15 to 25

No such exhaustive study of the little child from two to six has yet been made, but the studies that have been made from 1914 to 1917 at some of the baby health stations by Sobel of the New York Bureau of Child Hygiene give a most convincing table of comparison with the above findings.

FROM ONE TO SIX YEARS

Study of over two thousand children

	Per cent
Mental defects	1
Tuberculosis or pulmonary disease	3
Defective hearing	2
Defective sight	4
Diseased tonsils and adenoids	25
Defective nasal breathing	25
Orthopedic defects (deformities)	7
Defective nutrition	27

From eight to sixteen per cent examined were found to have defects of teeth only, and from fifty-eight to sixty-six per cent had general defects.

This comparative study shows us that defects must be recognized and corrected in the preschool period.

A brief summary of these various defects will help us to focus upon our problem.

Eye defects are usually rare. The acquired squint is the most common form of squint that usually develops between two and five years of age, and early use of glasses with proper training and exercises often produce quite marvelous results that are worth all the trouble.

Nose, throat and ear defects we see are extremely common and these include diseased tonsils and adenoids, the treatment or removal of which is essential to the general welfare of the child. Defective hearing is often prevented by this prompt action.

Defects of the bones, spine and joints which we can prevent or correct are usually the result of

rickets or deficient nutrition. They are not found among children who have expert supervision of their feeding during the first years of life.

Defects of teeth.—We know that the care of a child's teeth begins early, before he is born! For the enamel of the temporary teeth and to some degree of the permanent teeth is formed during this period. Nutrition, nutrition and again nutrition is back of all strong normal teeth. The care of them we have already discussed.

Defects of nutrition.—We know from the crowded clinics, from the doctors' offices, that the difficulties of food adjustment result in the most common defects—defective growth caused by faulty diet or hygiene.

Faulty postures are again defects that begin with our little child, and it is affected by the food he eats or fails to get; by the proper or improper way he breathes; a child's future strength and alertness are dependent upon the proper position and poise of his body. This defect is often caused by another common defect, flat-foot, which makes a child tire easily and lose interest in play, have pain in feet and legs, and wear off the inner portion of the heel and sole of the shoe. He must have proper shoes, strengthening exercises, walking, dancing, standing on tiptoe, and proper general hygiene.

Poor bodily posture and other physical defects often lead to defects which we call *mental* and *nervous*. Proper carriage of one's body has a direct influence upon one's conduct and mentality. Flat-foot is responsible for lots of laziness or lack

of ability for continuous mental effort in children. Undeveloped lower jaws, too narrow nasal cavities, adenoid growths, any condition that affects breathing, will have its effect not only upon physical but also mental effort. In the examination of thousands of underfed children, the stunted mental growth was so often apparent that I feel there can be no overemphasis of the relation of nutrition to normal mental and nervous development.

Many children with definite mental defects lose their chance for most effective training of their capacities by the refusal of loving parents to recognize early the seriously handicapped child. Early recognition of mental defects is just as important as that of the early treatment and removal of physical defects, and when the two are intimately related, it is the only way by which any progress can be made. But when the physical defects have all been noted and cleared up, we still have the real mental defective whose mental fiber can not be changed: the idiot who never develops beyond the mental age of two; the imbecile who does not develop mentally beyond the average child of seven years; and the moron who does not acquire a higher mental development than a child of twelve years. Experts by various mental tests are now able to determine with a fair degree of accuracy the mental capacity of such deficient children and prescribe the necessary training. Many children suffer most cruelly from sensitive parents, who refuse to have these tests made, saying, "What is the use, we know he

is 'defective,' " thereby losing for the child his chance to develop to his full capacity and for themselves great comfort and help, in realizing that they may still do much for their little handicapped child. The mental test does, of course, determine the grade of defectiveness, but it also opens a door by which even the defective child may have a chance to become a useful and happy citizen. For a long time we unconsciously denied to the defective child any real capacity for training, thereby taking from him all that he had.

Most indications of mental defects are quite simple of observation—the inability of a child to grasp objects, to hold up his head, to sit up or walk long past the usual age; vacant facial expression, open mouth, protruding tongue, drooling, aimless movements of the hands and body, squint, inability to recognize people or to learn to talk—all of these indications, when unrelated to any physical defect, should immediately bring the child to a mental expert for testing and examination and direction of the child's training. The question of where the training of the defective child can best be carried out, whether at home or in an institution, brings out much discussion. From my own experience, I feel sure of one aspect of the matter. The training of the defective child must not be carried on at home at the sacrifice of other normal children or adults. Normality has just as definite rights as abnormality, and I have seen normal children seriously affected in their development by the presence in the home of a defective brother or sister, and that very defective

child unable to have the best chance for the development of *his* capacities because of this—though the normal child, because of his high imitative powers, suffers most from such a situation. In fact, the entire family life suffers from the catastrophe of the mental defective, when such results could be limited to the defective himself.

Defects of the nervous system are often conditions resulting from inferior constitutions built upon factors present in early childhood. These nervous defects may be anatomic, such as conditions of bodily disproportion, enlarged tonsils, underweight or obesity, enlarged bones in the nose, etc., some of which are possible to affect, others are not. Other nervous defects may be largely physiological, such as tendency to cold, clammy skin, and hands and feet, unstable temperature, low blood pressure, or undue dryness of the skin, constipation, anemia, etc. Some of these conditions are possible to affect, others are not. Still other nervous defects are the many perverse tendencies that show even in our little child—food idiosyncrasies, for instance, are most difficult to handle, also the exaggerated sense of inferiority, or the extreme selfish, self-centered attitude. These latter *psychic* aspects of the defects in little children we will discuss at length in our last chapter on Mental Snags. Suffice it to say here that the early recognition and treatment of these conditions are of paramount importance.

Two habits which have, as a rule, a nervous background, bed-wetting and masturbation, or handling of the sex organs, I would like to include in this present chapter, because the approach to

the breaking of these habits is so often the wrong one, the accusation of a little child of wrongdoing. Neither of these conditions has any moral aspect for our little children. Bed-wetting we discussed at length in an earlier chapter, but I would like again here to emphasize this in relation to nervous defects, in order that intelligent methods of handling it may be substituted for threats of punishment.

Masturbation occurs in children of all ages and in both sexes, though in young children it is more common in girls than in boys. There are many so-called local causes—abnormalities in the organs themselves, inflammation, irritation from acid urine, threadworms, tight clothing, etc. These may all be affected by care and treatment or operation, and removed as causes. General causes are more difficult to affect, such as nervous heredity, nervous instability, general malnutrition or any condition which produces undue stimulation of the nervous system.

“How am I to know?” is the usual question of an anxious mother. Well, you can not *know* unless you have actually seen the child perform the act. In the little child that is easily seen, because the little child has no conception of anything wrong and will make no attempt to hide his unconscious handling of himself. The first treatment is to remove any physical cause that may exist, and second the upbuilding of the general health and nutrition of the child. Mechanical restraint, such as tying hands or wearing metal mittens, is of little value at any age, unless there is some definite irritation which must be protected until

cured. For children over three, such methods of handling the habit are most pernicious for the child. They are too often resorted to by lazy grown-ups who have allowed the habit to develop from faulty hygiene of the child, and the mechanical restraint relieves them of the responsibility of really helping the child to acquire better habits. Such a procedure only fastens the habit more firmly in the child's mind, hurts his pride, often breaks his spirit, the very elements that must be appealed to if he is to conquer the habit. To accuse any child of this habit when we have no actual knowledge of the child's having indulged in this habit is to invite often a most serious nervous condition and often to encourage deceit and lying. This habit in little children is not the same as in the later adolescent period, and in handling the situation with a little child we should never impose either the judgment or the treatment of the adolescent period. There should be no emphasis placed upon the habit in the child's mind. There should be wise and constant supervision with wholesome new substitutes for their interest and attention. Patience and sympathetic care are required and never the accusation that leads to antagonism, because even a little child recognizes unfairness.

There are several disorders which may be permanent defects related to the child's mental development, such as stuttering, stammering, backwardness in speech and deaf-mutism. Usually they are acquired disorders that we are dealing with.

Stuttering is perhaps the most common and usually appears three or four years before speech is mastered. It may be caused by various contributing factors, such as nutritional disorders, following acute illness, fear or nervous shock of various kinds or the tendency may be inherited and further intensified by his imitative powers. In very young children the habit often disappears as quickly as it developed. Early treatment and systematic training can be given before the habit is firmly established.

Backwardness in speech, when not due to mental defects, is caused by the same various factors, usually by prolonged or severe illness, but this is entirely overcome in later years. Deaf-mutism may be congenital, but the greater proportion of cases is acquired. Scarlet fever is the most frequent cause of the acquired condition, but mumps, diphtheria, measles, and other infectious diseases that affect the middle ear, leaving a chronic discharge, may cause the deaf-mutism, but these are very rare. If a child of normal mentality makes no effort to speak at the end of two years, deaf-mutism should be suspected.

So we find in all these defects of early childhood, whether the condition is one that yields readily to care and treatment or whether it be in the class of unalterable conditions, such as actual mental defects, we can by early recognition and early training always *better* the condition and give the child all the chance possible for his development.

CHAPTER VIII

THE FOOD HE EATS

Nutrition, Diet and Malnutrition

SOME one said that “a well-balanced diet meant a well-balanced baby.” I’d like to add another factor to the equation. A well-balanced mother = a well-balanced diet = a well-balanced baby! It is never a quantity problem except in the most limited sense. Too much of the wrong food is just as unfortunate for the child as too little of the right kind. The first lesson for all those to learn who provide and prepare food for little children is the lesson of *balance*, that is, the study of food in relation to the child’s needs, in relation to other foods, and there is no “royal road,” no “short cut” to this knowledge. We must face our problem; have a real knowledge of the field we are tackling, and learn to use sound scientific facts in our “daily round and common task,” that of preparing three meals a day for our little child. What *we* were fed as children may not be at all the diet we should give our children to-day, in the light of study and investigations of nutritional problems. Busy mothers may not *go* deeply into the subject of scientific food investigations, involving as they do a knowledge of chemistry, physics, physiology and the like, but just as every

small boy to-day has grasped the fundamentals of radio, by putting a few fundamental facts into operation himself, so mothers can grasp the fundamental facts in the terminology of food problems and bring them to bear upon their own immediate problems.

It is as fine a "natural" picture puzzle as we can ever fit together. The little child's body is made up of certain chemical substances. Food is made up of certain chemical substances and in both cases the substances are similar. There are from fifteen to twenty such substances, the most abundant being oxygen, hydrogen, carbon, nitrogen, calcium, phosphorus, sulphur, potassium, sodium, chlorin and iodin. And the body of the child and the food we give him contain these substances in a great variety of compounds, and the most important of those compounds are protein, fats, carbohydrates, mineral matter, vitamins, water and cellulose (fibers).

We have some very definite tasks. We must provide the child with the necessary material for building up the new body cells as his growth develops, in all his organs and tissues, and we have to provide him with the materials for repairing any wastes. We can not stop there. We have to provide the materials for furnishing the child muscular power and energy and to supply heat for maintaining the body temperature. This is our *food* task. Energy, all of it, comes from the sun and we get it into the child by feeding him vegetables, cereals or fruits, those "sun products," or indirectly in the form of meats.

Protein is the compound that forms about eighteen per cent of the weight of the average man and it includes the principal nitrogenous compounds which are needed by children for growth and to provide for repair of tissues, and also to provide fuel for energy. McCollum, in his recent studies, throws new light on the subject of proteins by pointing out the great differences there are in the biological values of various proteins due to the varying amounts of waste involved in transforming our food proteins into the tissue proteins. The natural conclusion is that the most nutritively efficient protein is the one where there is the least waste in such a transfer. Milk is placed exceptionally high in the list of those foods containing proteins of such character. Grown-ups may meet most of their protein requirements with protein from cereal grains, milk, and fresh fruits, but the little growing child *needs* the animal proteins which are more efficient in furnishing proteins for his rapid growth and for the constant repair. Foods containing a high percentage of protein are the following:

Vegetables, such as peas, beans and lentils.

Cereals, such as wheat, corn, barley, rye and oats.

Nuts, such as almonds, walnuts, etc.

Milk, Lean Meat,

Eggs, Fish.

Cheese.

Carbohydrates are the sugars and starches of our diet that furnish us muscular energy and

bodily heat. Starch is really one of the chief fuels of the body, and we get it mainly from cereal foods. The digestion of starch begins in the mouth with the action of the saliva and is finished in the intestines; therefore the little child should be given some hard bread or toast to chew and not entirely cereal foods in mushy forms. To have toast to chew helps the little child to eat more slowly.

Carbohydrate is found as starch in the following:

Cereals, such as wheat, oats, corn, tapioca, farina and rice.

Vegetables, such as potatoes, beans, etc.

Fruits, such as bananas.

Nuts, especially chestnuts.

Sugar is a supply of fuel for the body, and it serves as flavoring for food. Milk, fresh fruits and other articles contain sugar, but unless small amounts of very sweet materials, such as sugar, sirup or honey are given, the diet is apt to be lacking in it. But large amounts of very sweet materials in the diet very markedly depress digestive secretions and delay the emptying of the stomach. The craving of children for sweets is not a guide to their requirements, and a good plan is to limit sweet desserts to the noon meal. Candy should be eaten after, not before, meals, and hard candies which must be sucked are better for children than cream candies which may be swallowed quickly because smaller amounts of less concentrated sugar solution enter the stom-

ach more slowly from sucking hard candies. *Carbohydrate* is found as sugar in:

Juice of beets and sugar cane.

Juice of sweet fruits such as oranges, grapes, apples.

Vegetables such as corn, peas and carrots.

Maple sirup, honey and molasses.

Fats.—Fat is a more concentrated body fuel than the carbohydrates, sugar and starch, and a certain amount of fat improves the flavor and texture of food. Food that is cooked, or meals that are served without a certain amount of fat, butter or cream, are not very palatable. The body is able to change sugar and starch into fat and store it away with the fat from the food in the tissues as a reserve supply. The usual foods containing fat which little children are given are:

Milk	Olive oil	Nuts (except
Cream	Cottonseed oil	chestnuts)
Butter	Peanuts	Meat fats
Egg yolk	Cocoa beans	(bacon)

The fat of milk is most easily and completely digested because it melts at a low point of heat. Nut butter and corn oil are also valuable foods for children for this reason, but they are deficient in fat soluble A, a vitamin necessary for normal growth, and, therefore, should never entirely replace the fat of milk. We will discuss the vitamins later.

Minerals, such as iron, lime, phosphorus, calcium, soda, potash and sulphur, are absolutely necessary to life. They do not yield any of us very much energy, but they are our chief building materials, and are considered in the diet of a little child from the moment he is born. The quantities of mineral substances a child needs are not exactly known but every day more and more is revealed of the importance of these minerals in all diet and specially of childhood. We have learned by experiment that so-called "drug-store" minerals are not as effective as minerals that come to the body in vegetables and animal tissues or fluids, unless they have in some way been made vital and living, when they are so much more readily and thoroughly assimilated by the system. How many thousands of bottles of "iron mixtures" are still sold "to build up" a little child who is peaked, when perhaps and often the very "iron" he needs is being carefully raised in the garden outside and sold to market! Or how often the mineral matter in fruits and vegetables is lost by wrong cooking! The mineral matter in fruits and vegetables lies just beneath the skin, and, therefore, cooking without paring, by baking, stewing or steaming or by using the water in which the food is boiled, is the only way to preserve these minerals.

In grains, the minerals are in the germ and husks; therefore too refined flour and cereals lose these necessary ingredients. Of course, small quantities of mineral matter are found in practically all foods, but in preparing food for our

little child we must know where and in what quantities these minerals are found, in order to prepare a well-balanced diet. The tables given are a safe guide to this information and they show us important things: milk contains more calcium than meat, which is very low in this particular content. Green vegetables and edible leaves are high in mineral content. Egg yolk and spinach are very rich in iron. Cereal grains are low in calcium; therefore a child's diet can not be too exclusively "cereals." These tables show the necessity for *balance* of these substances in the diet, not only because they build up those most visible signs of a child's growth, such as his bones and his teeth, but they are present in other body tissues and in solutions in body fluids and do there form substances which offset the acid substances formed in the tissues by the digestion of meats and vegetables. Too many of these established *food facts* are lost in the modern maelstrom of food hobbies. The body has to digest and assimilate food; it has to absorb oxygen, and throw off carbonic gas by the blood; the body must have a normal heart action; it must generate energy, it must have a stable nervous system that registers right impressions properly and refuses wrong ones accurately, and all these activities of the body demand *minerals*: calcium, especially for bones and teeth; phosphorus for growth, for nerve cells; iron for red blood corpuscles; soda for the elimination of carbonic acid gas, etc. These are food facts as necessary for the little child as for us grown-ups, and maybe the greatest hero of mod-

ern times is the brave man who first put *spinach* into the diet of a two-year-old!

The following foods contain considerable quantities of both LIME and PHOSPHORUS:

Milk	Carrots	Parsnips
Cheese	Cauliflower	Rhubarb
Asparagus	Celery	Spinach
String beans	Lettuce	Turnips
Cabbage	Onions	

The following foods contain considerable quantities of PHOSPHORUS but little LIME:

Beans	Barley	Whole wheat
Lean beef, or other meat	Cod, or any fish	flour, or other whole grain
Peas	Lentils	preparations
Potatoes		

The following foods contain more IRON than other foods:

Asparagus	Egg yolk	Tomatoes
Lean beef, or other meat	Lettuce	Dandelion
Liver	Celery	greens
Kidney	Beans	Spinach
	Cabbage	

The following foods contain a high percentage of CALCIUM and PHOSPHORUS:

Grape juice	Orange juice
Maple sap	Milk
Rhubarb	

The following foods contain a high percentage of CALCIUM PHOSPHORUS and IRON:

Spinach	Lima beans	Celery
Prunes	Dates	Peaches
Egg yolk	Whole wheat	Lean meat (except calcium)
String beans	Peas	
Apples	Pears	
Whole cereals	Raisins	

Water is a real part of all the body tissues and constitutes sixty per cent of the weight of the body. It is an absolutely indispensable food element, for although it can not be burned and turned into body fuel, it is essential to the circulation of the blood and the different body fluids, and gives inestimable aid in eliminating the wastes of the body through perspiration, the bowels and kidneys. The little child must have plenty of water, all he wants and then some more. Water is given in milk, cocoa, soups, fruit juices, fruits and green vegetables; sixty-five per cent of meats is water; eighty per cent of fish; ninety per cent of fresh fruit and vegetables.

Vitamins.—These are not a new food hobby but a now established recognition of three essentials in diet that were long unsuspected. *First:* Fat-soluble A found in butter fat, egg yolk fats and fats from glandular organs of animals, such as the liver and kidneys, must be present in the diet. The lack of this vitamin causes a disease characterized by changes in the eyes, edema, inflammation, etc., and may be a factor in the picture of rickets, as a disease. Leaves of plants contain

a goodly percentage of fat-soluble A. Seeds, tubers and fleshy roots are poor in the substance.

Second: Water-soluble B is a vitamin very widely distributed. All whole seed products, tubers and fleshy roots, leafy foods, milk and eggs contain it in fairly large abundance, also the liver and kidneys of animals, but white flour, macaroni, spaghetti, cornmeal and products prepared from degerminated cornmeal and products prepared from bolted wheat flour contain very little of it. Polished rice, sugars, starches, fats and oils from animal and vegetable sources, and muscle cuts of meats lack this vitamin. Lack of this vitamin leads to the development of beriberi, of which paralysis is the most striking feature.

Third: Water-soluble C is the vitamin abundant only in fresh vegetables, fruits and fresh milk from cows in pasture. Dried and cooked foods lose much of this vitamin. Lack of this vitamin will produce scurvy.

Cellulose are those indigestible food fibers that are of great service in forming sufficient bulk and rough surfaces to stimulate the action of the bowels and have a laxative effect.

Foods containing cellulose:

Fibrous vegetables such as:

Whole wheat	Spinach
Whole cereals	Celery
Prunes	Onions
Dates	Carrots
Figs	Beets
Raisins	Beans and Peas
Skins of Apples, Pears	

Foods lacking in cellulose:

Concentrated foods, such as:	Refined foods, such as:
Nuts	White flour
Cheese	Cream of wheat
Butter	Cornstarch
Sugar	
	Liquid foods

Laxative foods:

Whole wheat cereals	Peaches	Rhubarb
Whole wheat bread	Figs	Pecan nuts
Whole wheat crackers	Dates	Gingerbread
Cornmeal	Prunes	Honey
Bran muffins	Oranges	Molasses
Peanut butter	Apples	Spinach
Olive oil	Raisins	Onions
	Cottonseed Oil	Grapes

We now have before us in our study the necessary food substances, all our nutrition materials so to speak, and the next question is, How much of each? Nothing must be left out. All our nutrition substances are indispensable, and, as one mother said, "I feel just like Noah getting the animals into the ark when I study food ingredients, only *his* problem was simple. He just put them in 'two by two,' and I never know whether all these substances should go in 'two by two' or 'four by eight.' To determine how much of each we had to determine how much of all, and the famous Battle of the Calories has been fought and won, temporarily at least, and the

number of calories necessary to the life and development of the body has been scientifically computed. "Calorie" is the term applied to the measure of a unit of heat and represents the amount of heat necessary to raise the temperature of one liter (1000 c.c., or about a quart) of water one degree Centigrade. When we use the term calorie in food discussion, it means the amount of food necessary to furnish a calorie of heat when it is digested in the body. Although the number of calories required by any individual child depends upon the age, weight, activity, health of that child, and the temperament he possesses and the climate he lives in, still we have approximate guides in the following table that is the result of years of experimentations, and one which my own experience supports.

APPROXIMATE CALORIC REQUIREMENTS IN HEALTH *

Age, Years	Calories per Pound	Total Calories in 24 Hours
1	40-50	350- 950
2	40-45	900-1100
3	48-43	1100-1300
4	35-40	1300-1400
5	34-39	1400-1500
6	32-38	1500-1600
7	32-38	1600-1700
8	32-38	1700-1900

* From "Nutrition and Growth in Children," by William R. P. Emerson, p. 99 (1922).

But the *balanced* ration, the how-much-of-each problem, is more difficult to determine because of the wide variety of differences and idiosyncrasies in the individual children. However, constant experiment and study give us certain approximate

guides. We can say in general that from ten to fifteen per cent of the total number of daily calories should contain *proteins*; from fifty to sixty per cent should contain carbohydrates (sugar and starch); and from twenty-five to thirty-five per cent should contain fats. Too little of any of these factors, too much of any of these factors, cause troubles recognized now: too much fat, too much sugar or starch causes indigestion; too little fat can starve the nerves; too little protein can prevent normal growth. The whole subject of nutrition has been studied long enough now to make certain conclusions convincing. The peoples who live largely on meat, bread and potatoes and have little or no milk or green vegetables, do not acquire full physical growth, nor are they as vigorous as peoples whose diets are just reversed.

The great increase in the use of cereal productions due to the big scale of modern inventions during the last twenty-five years is considered by most experts of nutrition the chief cause of the rapid increase in tooth decay and other faulty developments of the bony structure of the body. But here we must confine ourselves to a few essential deductions that are especially important in the diet of the little child.

Leafy vegetables and milk must be in abundance in the child's diet. McCollum says he is unable to make satisfactory diets without milk, eggs, or leaves of plants as prominent constituents. Mother's milk is conceded by all authorities to be the

perfect food for the baby and gives the baby his best start in life. There is no substitute for mother's milk—there are only necessary expedients. The place of *milk* in the diet of our little child is now being vigorously discussed and investigated. But most authorities agree that milk should be the basis of the young child's diet. A glance at the tables shows us why; the substances milk contains and the ease with which milk is digested is the answer. The amount of milk is not so easily agreed upon, but my experience is that for little children under six years a quart of milk a day is never too much and may often be too little, and it must always supplement a carefully chosen diet of solid foods. Milk is not a substitute for meat, nor is meat an adequate substitute for milk. Both have distinctive places in the diet of a little child.

Many mothers have thought that their chief responsibility in the matter of a child's food lay in seeing that he never ate things that were bad for him and too little attention has been paid to the food that was good for him. When acute trouble arises, it is comparatively easy for the doctor to discover the sins of commission, but the sins of omission are most elusive, and grown-up habits of eating and traditional prejudices often limit a child's diet to a few perfectly good and reliable articles of food but omit many that would bring the desired balance of food essentials into the diet.

The dietaries given here are those drawn from many sources which I use in my work.

BALANCED DIET LIST FOR CHILD 15 TO 18 MONTHS
(Calories 1050)

6 A.M. Milk, warmed, 8 ounces
 8 A.M. Orange or fruit juice of some kind
 10 A.M. Milk 6 ounces, warmed
 Cereal 2 to 3 tablespoons with thin
 cream 2 ounces
 Toast, dry and crisp, $\frac{1}{2}$ slice
 2 P.M. Beef juice, 3 tbs. with 1 tablespoon
 scraped beef
 or
 One egg and chicken or mutton broth
 cooked with vegetables
 and
 Green vegetables, 1 to 2 tablespoons or 1
 tablespoon of baked potato
 Toast, $\frac{1}{2}$ slice of dry crisp toast with a
 little butter
 A little water to drink
 6 P.M. Milk, warmed, 8 ounces
 Apple sauce or prune puree, 1 tablespoon
 Toast with a little butter, 1 slice

BALANCED DIET LIST FOR CHILD TWO YEARS OLD
(1135 calories)*Sunday**Breakfast*

Orange juice	1 soft cooked egg
Milk toast, using bread, 1 slice, butter, $\frac{1}{2}$ pat, milk, $\frac{1}{4}$ cup	Zwieback, 1 piece Warm milk, 1 cup

<i>Dinner</i>	<i>Supper</i>
Baked potato, 2 tbs.	Rolled oats, 3 tbs.
Beef juice, 3 tbs.	Thin cream, 2 tbs.
Pulp of carrot, 2 tbs.	Bread, 1/2 slice
Toast, 1 slice	Butter, 1/2 tsp.
Custard, 3 tbs.	Warm milk, 1 cup
A little water	

Monday

<i>Breakfast</i>	<i>Dinner</i>
Wheat hearts, 3 tbs.	Coddled egg, 1, on zwie-
Thin cream, 2 tbs.	back, 1 piece
Toast, 1 slice	Dry toast, 1 slice
Jelly, 1/2 tsp.	Scraped beef, 1 tbs.
Warm milk, 1 cup	Butter, 1/2 tsp.
	Apple sauce, 2 tbs.
	(beaten egg white)
	Warm milk, 1 cup

Supper

Milk toast, 1 slice
Milk, 1/2 cup
Asparagus tips, 2 tbs.
(mashed on milk
toast)
Warm milk, 1 cup
Cracker, 1

*Tuesday**Breakfast*

Baked apple	Butter, 1/2 tsp.
Graham mush, 3 tbs.	1 soft cooked egg
Thin cream, 2 tbs.	Warm milk, 1 cup
Toast, 1 slice	

<i>Dinner</i>	<i>Supper</i>
Beef broth, 1 cup with farina, 2 tbs.; gelatin, 1/2 tsp.	Bread, 1 slice
Scraped meat, 1 tbs.	Cooked in milk, 1/2 cup
Cauliflower tips, 2 tbs. (or spinach)	Cracker, 1
Bread, 1 slice	Apple sauce with beaten white of egg
Custard, 2 tbs.	baked 3 minutes, 4-5 tbs.

Wednesday

<i>Breakfast</i>	<i>Dinner</i>
Milk toast, using bread, 1 slice, butter, 1/2 pat, milk, 1/2 cup	Milk soup, 1/2 cup with pureed spinach, 1 tbs.
Graham crackers, 3	Soft boiled egg, 1
Warm milk, 1 cup	Baked potato, 2 tbs.

Supper

Rolled oats, 3 tbs.
Thin cream, 2 tbs.
Warm milk, 1 cup
Toast, 1 slice
Apple jelly, 1 tsp.
Gelatin, 3 tbs.

*Thursday**Breakfast*

Prune juice	Graham crackers, 2
Germea, 2 tbs.	Butter, 1/2 tbs.
Thin cream, 2 tbs.	Warm milk, 1 cup

Dinner

Beef broth, 1 cup with
mashed carrots or as-
paragus
Bread, 1 slice
Scraped meat, 1 tbs.
Potato, 2 tbs.
Warm milk, 1 cup

Supper

Warm milk, 1 cup
Zwieback, 2 slices
1 soft cooked egg
Custard, 2 tbs.

*Friday**Breakfast*

Orange juice
Rolled oats, 3 tbs.
Thin cream, 2 tbs.
Toast, 1 slice
1 soft cooked egg
Warm milk, 1 cup

Dinner

Boiled rice, 2 tbs.
Beef juice, 3 tbs.
Pureed string beans or
cauliflower tips, 2 tbs.
Toast, $\frac{1}{2}$ slice
Junket, 3 tbs.
Warm milk, 1 cup

Supper

Warm milk, 1 cup
Cracker, 1
Butter, $\frac{1}{2}$ tsp.
Arrowroot, 1 tsp.,
cooked in $\frac{1}{2}$ cup milk
with beaten white of
egg and sugar added,
5 tbs.

Saturday

<i>Breakfast</i>	<i>Dinner</i>
Pureed prunes	Chicken broth, 1 cup
Farina, 2 tbs.	Pureed spinach, $\frac{1}{3}$ cup
Milk, 6 tbs.	Bread, 1 slice
Graham toast, 1 slice	Baked meat loaf, $\frac{1}{2}$ slice
Butter, $\frac{1}{2}$ pat	Mashed potato, 2 tbs.
Warm milk, 1 cup	Warm milk, 1 cup

Supper

Milk toast, using hot milk, 1 cup, toast, 1 slice, butter, $\frac{1}{2}$ pat
Baked custard, 1

BALANCED DIET LIST FOR CHILD THREE YEARS OLD
(1300 calories)*Sunday*

<i>Breakfast</i>	<i>Dinner</i>
Rolled oats, 2 tbs.	Bouillon, $\frac{3}{4}$ cup
Milk, 4 tbs.	Chicken fricassee, 2 tbs.
Graham toast, 1 slice	Chopped spinach, 3 tbs.
Butter, 1 pat	Bread, 1 slice
Sugar, 1 tbs.	Butter, 1 pat
Cocoa, 1 cup	Snow pudding, 2 tbs.

Supper

Coddled egg	Baked apple
Bread, 1 slice	Milk, 1 glass
Butter, 1 pat	

*Monday**Breakfast*

Prunes, 6 with juice
 1 soft cooked egg
 Toast, 1 slice
 Butter, 1 pat
 Milk, 1 cup

Dinner

Lamb chop, 1 small
 Mashed turnips, 2 tbs.
 Bread, 1 slice
 Butter, 1 pat
 Rice, 1 tbs.
 Milk, $\frac{3}{4}$ cup
 2 cookies

Supper

Cream of vegetable
 soup, 1 cup
 2 crackers
 Toasted cornbread, 1
 slice
 Butter, 1 pat
 Jelly, 1 tbs.

*Tuesday**Breakfast*

Milk toast, using hot
 milk, 1 glass, toast,
 1 slice, butter 1 pat,
 sugar, 1 tbs.
 Cocoa, 1 cup

Dinner

Scraped beef pat, 2 tbs.
 Mashed potato, 2 tbs.
 Artichoke, 1 small
 Bread, 1 slice
 Butter, 1 pat
 Apple sauce, 3 tbs.

Supper

Poached egg, 1
 Bread, 1 slice
 Butter, 1 pat
 Cream, 2 tbs.
 Gelatin, $\frac{1}{2}$ cup

*Wednesday**Breakfast*

Bacon, 1 slice
 Farina, 2 heaping tbs.
 Sugar, 1 tbs.
 Graham toast, 1 slice
 Butter, $\frac{1}{2}$ pat
 Milk, 1 glass

Dinner

Chopped spinach, 3 tbs.
 Bread, 1 slice
 Butter, 1 pat
 Tapioca pudding, 2 tbs.

Supper

Cream of pea soup, 1
 cup
 Bread, 1 slice
 Butter, 1 pat
 Baked apple, with thin
 cream, 2 tbs.

*Thursday**Breakfast*

Cooked peach, $\frac{1}{2}$
 Egg, 1
 Toast, 1 slice
 Butter, 1 pat
 Milk, 1 glass

Dinner

Chicken broth, 1 cup
 Roast lamb, 1 slice
 Baked potato, $\frac{1}{2}$
 Bread, 1 slice
 Butter, 1 pat
 Asparagus, 6
 Junket, 1 cup

Supper

Bread, 1 slice
 Butter, 1 pat
 Rice, 1 heaping tbs.
 Sugar, 1 tsp.
 Milk, 6 tbs.
 Cocoa, 1 cup

Friday

<i>Breakfast</i>	<i>Dinner</i>
Sugar, 1 tsp.	Halibut, 1 slice
Cracked wheat, 2 tbs.	Creamed celery
Toasted cornbread, 1 slice	Bread, 1 slice
Butter, 1 pat	Butter, 1 pat
Milk, 6 tbs.	Cooked figs, 3
Cocoa, 1 cup	Cookie, 1

Supper

Scrambled egg
Bread, 1 slice
Butter, 1 pat
Cooked pear, 1 small
Milk, 1 glass

Saturday

<i>Breakfast</i>	<i>Dinner</i>
Sliced orange, 1	Scraped beef pat, 2 tbs.
Sugar, 1	Rice, 1 tb.
1 Egg	Pureed corn
Graham toast, 1 slice	Bread, 1 slice
Butter, 1 pat	Butter, 1 pat
Cocoa, 1 cup	Prune whip

Supper

Clam chowder
Graham toast, 1 slice
Butter, 1 pat
Milk, $\frac{3}{4}$ cup

Note. A glass of milk may be given at 10 A.M. and 3 P.M.

BALANCED DIET LIST FOR CHILD FOUR YEARS OLD
(1380 calories)*Sunday**Breakfast*

Sliced orange, $\frac{3}{4}$ med.
Poached egg on 1 slice
toast, butter, $\frac{1}{2}$ pat
1 cup milk

Dinner

Chicken, 1 serving
Mashed potato, 2 heaping tbs.
Asparagus tips, 3 heaping tbs. with $\frac{1}{2}$ pat butter
Ice cream, 3 heaping tbs.

Supper

Cream soup with cubed
toast, 1 slice
Rice, 2 heaping tbs.,
butter, 1 pat
Baked apple with whip-
ped cream, 1 heaping
tbs.

*Monday**Breakfast*

Prunes, 6
Cereal, 3 heaping tbs.
with sugar, 1 heaping
tbs.
Whole milk
2 slices zwieback
1 cup milk

Dinner

Broiled chop
Baked potato, $\frac{1}{2}$
Summer squash, 3 heaping tbs. with butter,
 $\frac{1}{2}$ pat
Fresh pear (peeled)

Supper

Toast, 1 slice with 1
soft cooked egg
4 tbs. cream
4 tbs. milk
Creamed spinach
1 piece zwieback
Chocolate pudding

Tuesday

<i>Breakfast</i>	<i>Dinner</i>
Sliced peach, 1, with sugar, 1 heaping tsp. and cream, 2 tbs.	Roast beef, 2 thin slices Roast potato, $\frac{1}{2}$ Stewed tomatoes, 3 heaping tbs.
Bacon, 2 slices	
Toast, 1 slice with but- ter, $\frac{1}{2}$ pat	Rice pudding
1 cup milk	

Supper

Baked macaroni, 3
heaping tbs.
Carrots, 3 heaping tbs.
Toast, 1 slice with but-
ter, $\frac{1}{2}$ pat
1 heaping teaspoon cot-
tage cheese
Apple sauce, 1 heaping
tbs.

Wednesday

<i>Breakfast</i>	<i>Dinner</i>
Sliced orange, $\frac{3}{4}$ med.	Beef pat
Bacon, 2 slices	Rice, 2 heaping tbs.
Toast, 1 slice with $\frac{1}{2}$ pat butter	Artichoke with 1 pat butter
1 cup milk	Strawberries with 1 heaping tsp. sugar, 2 tbs. cream

Supper

Cream of vegetable soup
$\frac{1}{2}$ baked potato
1 slice toast with $\frac{1}{2}$ pat butter
Floating island

Thursday

<i>Breakfast</i>	<i>Dinner</i>
Cooked berries, 3 tbs.	Roast mutton
Cereal, 3 heaping tbs. with $\frac{1}{2}$ glass milk, 1 heaping tsp. sugar	Mashed potato Minced celery, 3 heaping tbs.
Toast, 1 slice with $\frac{1}{2}$ pat butter	Bread pudding with cream, 2 tbs.
1 cup milk	

Supper

Egg omelet with creamed asparagus tips	1 slice toast Butter, $\frac{1}{2}$ pat Cantaloupe, $\frac{1}{3}$ medium
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Friday

<i>Breakfast</i>	<i>Dinner</i>
Baked apple with cream, 2 tbs.	White fish
1 egg poached on rusk with $\frac{1}{2}$ pat butter	Boiled potato with $\frac{1}{2}$ pat butter
1 cup milk	String beans
	Sliced orange

Supper

Cream of vegetable soup
Rice
Creamed spinach
Toast, 1 slice
Butter, 1 pat
Gelatin

Saturday

<i>Breakfast</i>	<i>Dinner</i>
Apple sauce	Scrambled eggs 2 with minced bacon
1 egg	Baked noodles
1 slice toast	Creamed cauliflower, 3 heaping tbs.
Butter, $\frac{1}{2}$ pat	2 halves cooked apricots
1 cup milk	

Supper

Onion soup, with grated cheese, 1 heaping tsp.	Butter, 1 pat
Baked potato, $\frac{1}{2}$	Prune whip with cream, 2 tbs.
1 slice toast	

BALANCED DIET LIST FOR CHILD FIVE YEARS OLD
(Calories 1490)*Sunday**Breakfast*

1 scrambled egg with
minced bacon, 1 slice
Toast, 1 slice, butter, $\frac{2}{3}$
pat
Milk, 1 glass

Dinner

Lamb chop, 1
Potato, 1 small
Butter, $\frac{2}{3}$ pat
Bread, 2 slices
Bread pudding, 2 tbs.
Milk, 1 cup

Supper

Stewed tomatoes
Rice, 1 heaping tbs.
Butter, $\frac{2}{3}$ pat
Bread, 1 slice
Baked apple, 1

*Monday**Breakfast*

Poached egg, 1
Corn flakes
Toast, 1
Butter, $\frac{2}{3}$ pat
Milk, 1 glass

Dinner

Broth, 1 cup
Fish, 1 piece
Parsley potato, 1
Bread, 2 slices
Butter, $\frac{2}{3}$ pat
Sliced peaches, 2

Supper

Milk, 1 cup
Creamed carrots, 2
heaping tbs.

Bread, 1 slice
Butter, $\frac{2}{3}$ pat
Apple tapioca

*Tuesday**Breakfast*

Farina, 3 heaping tbs.
 Bacon, 1 portion
 Toast, 1 slice
 Butter, $\frac{2}{3}$ pat
 Milk, 1 glass

Dinner

Vegetable soup, 1 cup
 Roast beef, 1 $\frac{1}{2}$ slices
 Potato mashed, 1 small
 Bread, 1 slice
 Butter, $\frac{2}{3}$ pat
 Apple sauce, 2 heaping
 tbs.

Supper

Poached egg
 1 slice toast
 Summer squash, 3 heap-
 ing tbs.
 Bread, 1 slice
 Butter, $\frac{2}{3}$ pat
 Milk, 1 glass
 Gingerbread, $2\frac{1}{2}$ x $2\frac{1}{2}$
 x 1

*Wednesday**Breakfast*

Sliced orange, 1
 Soft cooked egg, 1
 Bacon, 1 slice
 Toast, 1 slice
 Butter, $\frac{2}{3}$ pat
 Cocoa, 1 cup

Dinner

Steak, 1 small portion
 Rice, 2 heaping tbs.
 Asparagus, 9
 Butter, $\frac{2}{3}$ pat
 Bread, 2 slices
 Strawberries, 4 heap-
 ing tbs.

Supper

Baked potato, 1 small
 Bread, 1 slice
 Butter, $\frac{2}{3}$ pat
 Gelatin, 3 heaping tbs.
 Milk, 1 glass

*Thursday**Breakfast*

Rolled oats, 3 heaping
 tbs.
 Toast, 1 slice
 Butter, 1 pat
 Milk, 1 glass

Dinner

Chicken, 2 slices
 Potato, $\frac{1}{2}$
 Baked tomato, 1
 Bread, 1 slice
 Butter, 1 pat
 Cooked pears, $\frac{1}{2}$

Supper

Cream soup, 1 cup
 1 egg
 Bread, 2 slices
 Butter, 1 pat
 Sponge cake

*Friday**Breakfast*

Scrambled egg, 1
 Toast, 2 slices
 Butter, $\frac{2}{3}$ pat
 Cocoa, 1 cup

Dinner

Chicken broth
 Creamed fish, 1
 Mashed potato, 2 tbs.
 Spinach, 3 heaping tbs.
 Bread, 1 slice
 Butter, $\frac{2}{3}$ pat
 Cantaloupe, $\frac{1}{3}$

Supper

Broth with rice, 1 tbs.
 Toast, 1 slice
 Butter, $\frac{2}{3}$ pat
 Sugar cookies, 2
 Blackberries, 3 heaping
 tbs.

*Saturday**Breakfast*

Grapefruit, $\frac{1}{3}$
 Poached egg, 1
 Butter, $\frac{2}{3}$ pat
 Toast, 1 slice
 Cocoa, 1 cup

Dinner

Roast mutton, 2 slices
 Roast potato, $\frac{1}{2}$
 Bread, 2 slices
 Butter, $\frac{2}{3}$ pat
 Ice cream, 3 heaping
 tbs.

Supper

Creamed asparagus, 9,
 on buttered toast, 1
 slice
 Rice, 2 heaping tbs.
 Cooked figs, 3 tbs.
 Milk, 1 cup

Note. A glass of milk may be given at 10 A.M. and
 3 P.M.

BALANCED DIET LIST FOR CHILD SIX YEARS OF AGE
(Calories 1600)*Sunday**Breakfast*

Poached egg, 1
Bacon, 2 slices
Butter, 1 pat
Milk, 1 glass
Sliced peaches

Dinner

Beef broth
Chicken, 1 serving
Asparagus tips, 9
Bread, 1 slice
Butter, 1 pat
Potato, 1 medium
Cooked berries

Supper

Cream of vegetable
soup
Bread, 1 slice
Butter, 1 pat
Hot rice, 2 heaping tbs.
Milk, 4 tbs.
Gelatin, $\frac{1}{2}$ cup

*Monday**Breakfast*

Cooked prunes, 9
Graham toast, 2 slices
Butter, 1 pat
Rolled oats
Milk, 1 glass

Dinner

Roast lamb, 1 slice
Butter, 1 pat
Bread, 1 slice
Spinach, 3 heaping tbs.
Mayonnaise, $\frac{1}{2}$ tbs.
Tapioca pudding

Supper

Butter, 1 pat
 Bread, 1 slice
 Baked potato
 Cottage cheese, 1 heap-
 ing tbs.
 Milk, $\frac{1}{2}$ glass
 Baked custard

*Tuesday**Breakfast*

Fresh fruit

Bacon, 2 slices

Farina, 3 heaping tbs.

Toast, 2 slices

Butter, 1 pat

Milk, 4 tbs.

Cocoa, 1 cup

Dinner

Vegetable soup

Roast beef, 1 slice

Roast potato, 1

Butter, 1 pat

Bread, 1 slice

Carrots, 3 heaping tbs.

Grapes, small bunch

*Supper*Oyster stew, milk, 1
cup, oysters, 3

Butter, 1 pat

Bread, 1 slice
1 soft cooked egg

Cookies, 2 small

*Wednesday**Breakfast*

Baked apple

Toasted corn flakes

Toast, 1 slice

Butter, 1 pat

Bacon, 2 slices

Milk, 1 glass

*Dinner*Creamed chicken on
toast, 1 slice

Bread, 1 slice

Butter, 1 pat

Cauliflower tips, 3 heap-
ing tbs.

Bread pudding

Supper

Jelly, 1 heaping tbs.	Cheese custard
Bread, 1 slice	Baked potato
Butter, 1 pat	Milk

*Thursday**Breakfast*

Fresh fruit
Soft cooked egg, 1
Graham toast, 2 slices
Butter, 1 pat
Cottage cheese, 1
Cocoa, 1 cup

Dinner

Chicken broth
Lamb chop
Bread and butter
Mashed potato, 2 heaping tbs.
Hot artichoke with mayonnaise, $\frac{1}{2}$ tbs.
Ice cream

Supper

Rice, 2 heaping tbs.
Bread and butter
Milk, 1 glass
Thin cream, 2 tbs.
Sliced peaches

*Friday**Breakfast*

1 poached egg on toast, 1 slice
Toast, 1 slice
Butter, 1 pat
Bacon, 2 slices
Milk, 1 glass

Dinner

Clam broth, 1 cup
Fish
Buttered noodles, 3 heaping tbs.
Bread and butter
Cooked tomato, 3 heaping tbs.
Prune whip

Supper

Cream vegetable soup
 Bread, 1 slice
 Butter, 1 pat
 Baked sweet potato
 Cottage cheese, 1 heap-
 ing tbs.
 Cooked pear, $\frac{1}{2}$

*Saturday**Breakfast*

Sliced orange
 Cracked wheat, 2 heap-
 ing tbs.
 Milk, $\frac{1}{3}$ cup
 Coddled egg
 Graham toast, 2 slices
 Butter, 1 pat
 Cocoa, 1 cup

Dinner

Cheese custard
 Baked potato
 Asparagus with mayon-
 naise
 Bread, 1 slice
 Butter, 1 pat
 Berries, 3 heaping tbs.

Supper

Milk toast
 Toast, 1 slice
 Hot milk, 1 glass
 Butter, 1 pat
 Apple betty

Section on Malnutrition

A LITTLE child's food habits are to be as carefully formed as other physical habits, as upon his food habits so often rests the source of trouble, and especially is this true in the condition of the

undernourished child. A normal healthy child eats a variety of food and has no special dislikes, although some children on a well-balanced diet will show very definite food dislikes. Usually sufficient appetite will conquer and the wholesome food will be eaten because the child is really hungry; but long-continued lack of appetite and freakish desires usually indicate illness of some sort. Firmly but gently to teach a little child to eat what is given him as a matter of course is the first step at least in preventing the malnutrition or undernourishment that often results from bad eating habits.

Malnutrition is caused by various factors, such as some definite disease or some abnormal condition. *Tuberculosis* is the most common condition that results in malnutrition and usually without giving marked symptoms. The disease is not pulmonary but is usually in the lymph nodes, such as the glands in the neck, and may be active or latent. The diagnosis is most difficult to make, as often only the positive skin-reaction test will reveal the condition. Some of the most common conditions which cause malnutrition are those of diseased tonsils, adenoids so large as to be an obstruction to breathing, difficult feeding in the first year or severe intestinal attacks. Serious illnesses like measles or whooping-cough or a series of acute infections in a short period of time may cause loss of weight for several years.

Then, too, malnutrition may be caused by bad hygiene and faulty diet. Insufficient food is the cause of much disaster. Little children are often

living on about one half the necessary calories, and it is easily done if a child is allowed to half finish his breakfast, leave one third of his supper, and, because he is so interested in his play, slip away from an unfinished lunch. Insufficient food is not alone the portion of the poor, but often occurs where there is abundance.

Add to the freakish eating habits we have spoken of, those of eating too fast, eating at irregular hours, and washing food down with water or milk, and we have further causes of underweight.

The *wrong food*, like tea, coffee, fried stuffs, pastry, sweets and meats in excess, is always a cause of this condition. Constipation or irregular bowel habits make it almost impossible for a little child to gain weight.

Lack of proper sleep and rest which produces a state of overfatigue is a frequent cause of underweight. The normal child is constantly active, and he must have brief intervals of rest if he is going to recuperate from his exertions. If he does not have rest periods or sound sleep at night he fails to gain in weight. Rest periods, whether a child sleeps or not, do certain definite things that aid in the treatment of malnutrition when it is caused by overfatigue. Rest periods will shorten the active periods and prevent further fatigue, will often lead to real daytime naps and sound sleep at night, and will increase the child's power to assimilate the food he eats. The rest periods should be regular: one half hour at least in the middle of the morning and in the middle of the afternoon; in extreme cases, several days in

bed are invaluable or one day in bed at various intervals of every two, three or four days. Keeping a little child in bed for breakfast can be made quite a game and thereby lengthen the rest period. When the little child sees by his watching of the scales that his rest periods do really result in gain in weight, he will help to take the rest.

“Early to bed” is the slogan of the years from two to six of the well child. It is doubly needed for the undernourished child. Twelve to fourteen hours out of twenty-four are none too much sleep for the underweight child. We have already emphasized the importance of rest and sleep for every well child; the undernourished child’s need of sleep and rest is far greater. Fresh air, proper exercise and absolute cleanliness of body and clothing all have added significance in the life of the undernourished child.

Regular and systematic weighing, monthly or bi-monthly, is the first requisite in both determining and preventing malnutrition, and a thorough medical examination that will both reveal and prevent defects is the second. A fairly safe index of the condition of malnutrition is the following:

Below weight for height and age.

Below height for age; sometimes too tall for age and weight.

Overfatigue; easily tired on slight exertion.

Poor general physical development.

Flabby musculature; incorrect posture.

Secondary anemia; poor circulation; pallor of lips and skin; cold hands and feet.

Moderate enlargement of the lymphatic glands is frequent.

Nervous habits; sleep disturbances; night terrors; irritability of temper.

Slow mentality or sometimes mental precocity.

Constant activity; nervous tension.

Feeble powers of digestion and assimilation.

Poor resistance to infections; frequent colds.

The amount of food for the undernourished child is sometimes three or four times that necessary for the normal child and should be given at regular intervals and more frequently. A mid-morning and a midafternoon lunch should be added to the usual three meals a day. The diet should be arranged for the undernourished child so that he will eat all the food given him and not fool with his meals and become fussy. This may be done by varying the amounts and the variety of food and also the way the food is prepared and served. A new plate often aids the situation as it is rather interesting to see what is underneath! The food must be eaten slowly and thoroughly chewed. Teaching a child to feed himself early assists because often a grown-up's pace of feeding food to a child is too rapid. Time, patience and an atmosphere of happiness are absolute essentials in getting a little child to eat the food necessary for his return to proper weight. To nag, scold, threaten is to use only temporary and flitting methods. Meals become a torment to both child and parents and little weight is gained. But

to get the child's interest by making a game of it, or by arousing his competitive instinct to be as big as brother or "to beat father to dessert," is a better, surer method.

I know of no other field of activity where the "golden mean" is more difficult to find. Nor do I know of one where it is more necessary than in this whole field of food. Our little child must not eat too much or too little, too slowly or too quickly, too often or too infrequently, too much of this, or too little of that; he must not be overweight or underweight or too tall or too short. But as the nursery rhyme goes, "when our little child's right, he is very, very right, and when he is wrong, he is horrid!"

Every child should have mud pies, grasshoppers, water bugs, tadpoles, frogs, mud turtles, elderberries, wild strawberries, acorns, chestnuts, trees to climb, brooks to wade in, waterlilies, woodchucks, bats, bees, butterflies, various animals to pet, hayfields, pine cones, rocks to roll, sand, snakes, huckleberries and hornets, and any child who has been deprived of these has been deprived of the best part of his education.

From "The Training of the Human Plant,"
by LUTHER BURBANK.

CHAPTER IX

PLAY

Recreation

A CHILD who does not play not only misses much of the joy of childhood but he can never be a fully developed adult. He will lack in manhood many of the qualities most worth while because many of the avenues of growth were unused and neglected during the most plastic period of his life.¹

Play is so important "an avenue of growth" and so closely interwoven with all normal growth and development that it is well to give it its own place in a book for the runabout child. It is impossible to overemphasize the value of play to the little child and the vital significance it has in the child's life. As Joseph Lee said, "the child plays to live," and in this two-to-six period child life is bound up in the expression of itself in play. For play is not mere occupation, keeping a child busy or out of mischief, nor is it mere amusement. Play has been called the Mother of Education, and close study of child play reveals the fact that intellect, memory, imagination and character are all powerfully affected in their development by the place given to play in the life of every little child.

¹ Norsworthy and Whitley, "Psychology of Childhood," p. 219.

In general, the children from one to six years of age show a particularly individual side, and seem to be governed in their play by impulse. This latter tendency is the basic reason for intelligent supervision of the child's play in this period, for these instinctive habits in his play are the forerunners of his later habits. To allow a child to sit on the floor and beat a tin pan indefinitely to the utter destruction of adult nerves is not just keeping him occupied; it is forming a habit which results in excessive tendencies when he is older and lack of control of himself that has far-reaching consequences. It is not the noise he makes that really matters. It is the habit formed of allowing his expression of himself to be "noise." The world has many grown-ups still beating tin pans and yelling because at the age of two there was no firm gentle hand to offer them a constructive play tool with which to express their individuality! Supervision of a child's play is as necessary as supervision of food and health habits, and repays a busy mother a hundredfold. Play is not only a valuable asset in the child's physical development, but it is a big factor in the development of his mind and character, the things of his spirit so difficult to affect later if the opportunities of his little childhood are neglected.

This individualistic and more or less solitary play period makes the *mother's leadership* essential to the child's play, if the normal physical and mental growth and development are to take place. That does not mean that the mother is constantly to play with the child—nothing could be worse

for him than that—nor does it mean that the mother is to act as a steam-roller and crush the child's creative power and initiative. The mother's leadership means to provide the little child with the materials with which *he* can reconstruct the world as he sees it, and as it is the make-believe period of childhood, the simplest materials of durable quality are all that are needed. The child of three, four or five years usually plays alone, and it is well to let him alone if he is provided with proper materials.

It may be that two or three children will seem to play together in the same sand-box, but if one watches closely one discovers that each child is playing "a lone-hand," in that he is carrying out some idea in which only *he* is concerned. Conflicts come in that sand-box when those individual ideas bump. The mother's leadership ought to be firmly established during those early years, guiding those four instincts that underlie all human achievement even when one is but two years of age—workmanship, imitation, competition and coöperation. These are all present in the sand-box! But the mother's efforts are not only for the good of the child. Such early leadership brings to her in the later years of childhood, and often all through life, that gratifying relationship with her children based upon their confidence that mother is the "best of pals," because ever since they can remember she has, in a quiet, effective way, made it possible for them to best express themselves, and her fair, just guiding of them has given them those qualities in their rela-

tions with others. (It will not hurt any father to read this last paragraph and it might help in family coöperation !)

This little child period is also the toy age and therefore the kind of toy becomes of utmost importance in its value to the little child. Toys were never intended as substitutes for a mother's intelligence or a father's understanding interest. Too many grown-ups sin grievously against little children in this matter of toys. Every modern toy department is the proof of this statement, filled as they are with cheap imitations of real things or expensive finished copies of things the little child wants to make for himself. The safest guide in choosing toys for little children is never to give them anything that requires nothing of them. One often hears the complaints of well-intentioned parents that the children tire so quickly of their presents and seem spoiled and unappreciative, when the reason for this state of mind lies in the fact that the toys are complete in themselves, requiring no effort on the child's part, allowing him no chance to express himself creatively. It takes a strong character at five years to visit a toy department and come back to home toys serene, not because the child wants all he has seen, but the things he has made himself seem dull and inadequate for a time, and it often takes a day or two for his own creative imagination to reclothe, as it were, his own simple "make-believes."

The sand-box gives more pleasure to the child under six than any other one thing, and it may

be built on a porch or a roof or a slightly sloping part of the yard where the sand may be drained and kept clean by sunshine. In this way the sand-box is an available playground almost all the time, and with a few simple toys such as old spoons from the kitchen, a clean lard pail or two, the empty baking-powder tin, some flat, smooth pieces of kindling wood to pat models of sand into shape, some clothes-pins, some shells, the little child is busy for hours doing for himself all the things he sees in his domestic environment; for the little child is imitative as well as creative, and in his play he imitates the world he sees around him and wants to create that world for himself. Lucky is the five-year-old whose mother or her substitute, the cook, will allow her to sit at the end of the big kitchen table on baking day and learn with real dough to make biscuits that go into a real oven and come out little tiny cakes to be eaten by the dolls first and mistress later for supper!

Blocks, clay to model, drawing materials and crayons, paints, pencils and paper and a small blackboard are excellent tools for this period. At five, children delight in the low carpenter's bench and table and real tools to make things with soft wood. Large and small wooden boxes are a great joy, so many things can be made of them: houses and carts, high towers and low bridges, and stables for the horses and cows.

Low swings and teeter boards are of great delight to the little child; a horizontal bar placed low is splendid exercise for the little child and

safer to climb and swing and hang on than a tree or fence. The public playgrounds will more and more consider the needs of the little child if intelligent public opinion expressed by groups of mothers ask for these things. In the city of Edinburgh, Toddlers' Playgrounds have been organized and specially equipped and supervised for the runabout children.

Dolls have a very important place in the life of this period. The dolls are the first audience of the little child. Upon them he tries out all he has learned that interests him. All the ways of doing things are taught over again by the small owner to the doll. It is amusing to hear our own inflection of voice and our own manner of speaking imitated perfectly. The doll's teeth are brushed vigorously, nails are scrubbed and cleaned, drinks of water are given, faces washed, endless dressing and undressing, naps given and hair brushed, until the poor dolls become more and more dilapidated but the lessons learned by the little child are more and more firmly fixed in his mind. All the moral side of life is also tried out on the poor dolls. They are rewarded with kisses and sweets for good behavior and are put to bed for bad. Every bit of discipline a child receives is immediately passed on to the doll and often discipline for himself is averted by the wise mother who puts what she wants the child to do into the doll's language and person! Both boys and girls play with dolls during this period. Dolls are so much more easily introduced into their make-believe world than either grown-ups or

animals for the dolls are small and stay "put."

But animals to pet are of great significance to the child of this young age. Teaching the little child to feed the rabbits, to see that their bed is clean and sheltered, to give pussy her milk, and the dog his food and drink, all bring home to the little mind the personal hygiene being taught him. Animals also discipline children as nothing else can. The children soon learn that if they are cruel to their pets, or tease them, the pets run away from them and won't play. Miss Pussy gets out of reach in the tree and Fido crawls off to a safe corner. Neglect of the pets' care makes them sick and the training a child gets in memory and character building in helping to care for the pets he loves cannot be overemphasized. Some animal is available to every child if we value their significance in his life. The most limited home can provide a small aquarium with fish, tadpoles and snails to be cared for and watched. Two canary birds make fine parents for little children to know and the tiny birds are of intense interest to the little child, and the first lessons of human life are naturally learned under circumstances real and convincing without any particular stressing of reproduction and sex hygiene as such. The educational value of pets of this kind is large in this instance, but it can never be all even to the little child whose questions should be simply and honestly answered. Life is not all biological, it is moral, and with both plants and animals the child must be taught not only his likenesses to them

in anatomy and functions, but his differences from them. All the clever amusing animal books for children that humanize the animal relationships are excellent for the little child because they give him a simple philosophy of family life early. As Uncle Remus said, "Fine um whar you will and w'en you may, good chilluns allers gits tuck keer on. Dar wuz Brer Rabbit's chilluns; dey minded der daddy en mammy fum day's een ter day's een! W'en ole man Rabbit say 'scoot,' dey scooted, en w'en ole Miss Rabbit say 'scat,' dey scatted. Dey did dat, en dey kep der cloze clean en dey ain't had no smut on der nose nudder." And for the children whose home environment of city and country permits, there are no better playmates, friends and teachers than rabbits, guinea-pigs, white mice and pigeons. Perhaps rabbits are loved best of all by little children because they have real beauty and friendliness and thrive in spite of vigorous and frequent hugs from ardent owners.

But in all the play of children, whatever the equipment, if the play is constructive and interpretive, it must have as its basis the same relations upon which the real world depends. Play isn't a substitute for anything else. Play is in itself a vivid factor in growth and development which can not be neglected with safety. This early period from two to six gives to the little child his own real experiences in play which later find expression in his reading and writing and are the groundwork of his later development. It is the Robinson Crusoe period, the period of adventur-

ous finding out for himself, and the best watch-word for us grown-ups is "Let him alone." Keep our conventionalized standards in the background and let the child find out things for himself. We may think quite rightly that a watch is a time-piece to be carefully handled in order that we may meet our engagements promptly. But the little child is more or less irritated by that finished regular face of a watch with its perfectly correct hands and its mysterious ticking off of minutes, and the first watch is always laid firmly upon the altar of scientific investigations! And often the second bright shining Ingersoll goes the same way, but his later respect for a watch as a timepiece is built upon his finding out "how it worked." Providing the proper equipment and materials for play is our grown-up task. Leaving the child free to dig things out for himself, to produce his own realities, is our grown-up duty. There was a small boy of six who drew aeroplanes, guns, ships and then smudged the whole thing with red crayon. When asked what his drawing represented he said: "Why, that's war. Isn't it a mess?" Another youngster drew a barely perceptible automobile in white crayon because, as he explained, "it's going so fast you can't see it." Play is the learning process itself, and resourcefulness, independence, observation, adaptability are some of the qualities learned. But is play ever work to the little child, and can work be filled with the play spirit? These questions come to any one who observes children closely. Of one thing we are sure, that work is never drudgery when the

play spirit is present, so that psychologists tell us that work and play are not two different things but only two aspects of one great activity which is *life*. We grown-ups are apt to feel that play is doing the thing you want to do, and work the thing you have to do. We can learn much from the little child in this as we watch him play so seriously because of the intense interest and joy he has in doing a thing. Play and work should never be spoken of as opposing activities. "You have been playing for six years—now you are a big boy and are going to school to work." No wonder school becomes a prison house and work a drudgery! No, play and work are simply attitudes of mind toward life and the formal education of the little child must not ignore that. The play spirit, which every little child has instinctively, is just joy in the doing of anything. Could there be a sounder basis for his later development?

APPENDIX TO CHAPTER IX

PLAY

Definite expectations for our little child of this period are of great help to the mothers in meeting the play-work needs of the runabout child. The following outline from G. Hardy Clark's book "Character Training" is offered as a suggestive outline of what a normal child might be expected to do and love to do it, if we grown-ups have done our part. But your child may do none of these things at these stated ages and still be president of the United States some day! The outline is not offered as settled dogma but as a challenge to those interested.

Play-Work for Children up to 60 Months of Age

At 15 months child should carry glasses of water to table; wipe up water from floor; dust and sweep with own cloth and broom; button and unbutton clothes; put away shoes.

At 18 months child should help set and clear table; wipe a dish or two; paste strips of paper to make squares and crosses; unpin safety-pins; take off shoes and stockings; use handkerchief and pocket.

At 21 months child should cut and paste strips of paper to make crosses, squares and triangles; cut and paste pictures.

At 24 months child should string beads with needle and thread; select colors; sew buttons; put scraps in waste basket.

At 27 months child should wash own hands clean, especially after toilet; help with bath; wash dish or two; paste strips on cardboard to look like picture frame; cut picture from book and paste it accurately.

At 31 months child should be able to cut and paste strips of paper to form A's, X's, I's, and H's, and know their names; pick over beans, break spaghetti, etc.

At 34 months child should fold paper to make hat; fold paper and cut out round letters of alphabet, C's, O's, etc.; know their names; paste on cards to form words.

At 36 months child should bathe itself; brush teeth; build houses with blocks; cut out pages from wall paper, fold and sew them to make scrap book; paste pictures with understanding of subject; nail pieces of lath together to make squares and triangles; draw crude picture of house and human face.

At 42 months child should do decorative work with brass-headed tacks with colored paper on pasteboard; put together mechanical toys.

At 48 months child should help wash and wipe dishes; help with bedroom work; weave and knit.

From 54 to 60 months child should help mix cooky dough, bread custards; help in baking them; help prepare vegetables, clean and put away cooking utensils.

Piping Down the Valleys Wild

Piping down the valleys wild,
Piping songs of pleasant glee,
On a cloud I saw a child,
And he, laughing, said to me:
“Pipe a song about a lamb.”
So I piped with merry cheer.
“Piper, pipe that song again.”
So I piped; he wept to hear.
“Drop thy pipe, thy happy pipe,
Sing thy songs of happy cheer.”
So I sang the same again,
While he wept with joy to hear.
“Piper, sit thee down and write,
In a book, that all may read.”
So he vanished from my sight,
And I plucked a hollow reed.
And I made a rural pen,
And I stained the water clear,
And I wrote my happy songs
Every child may joy to hear.

—WILLIAM BLAKE.

CHAPTER X

HIS HABITS AND HIS HAPPINESS

Character Training in Childhood

“Education should be *life* rather than a mere preparation for it.”

Gratian, the philosopher, said: “Perfection consists of three H’s—Health, Holiness and a Headpiece.”

THE period from two to six has not been considered part of the *child’s* educational system. The public-school system for many years began arbitrarily for the child at six but an increasingly intelligent grasp on the part of educators of the problems presented by the school beginner is slowly but surely pushing the so-called system of education back into the period where so much that is vital to the child’s development really begins. The solution of the problems of the child depends upon the study of the child himself and no public system of education can ever step very far in advance of the results obtained from the study and observation of individual fathers and mothers, teachers and nurses interested in the child’s own peculiar interests. This has been the experience of the doctor who was forced by the continuity of the life span itself to cease to look upon a child as just an immature man and to study the child’s

physical development from year to year in its relation to definite results in adult life. In the study of the little child the help of parents is needed by all educators, doctors, psychologists and teachers because that "play period" so full of vital significance to the child is the period in which usually only fathers and mothers and "his sisters and his cousins and his aunts" have the opportunity for intimate knowledge of the little child. And that period, which is so full of intense creative interest, of individualistic effort as we have found it to be, must be considered as part of the child's *educational* development. We can not suddenly take that little child out of such a period and jam him down behind a school desk and force a routine of work or effort upon him that bears but a general relation to his own individuality. The world needs men and women of creative thought, with powers of initiative and the ability to play the game joyously. Therefore, the responsibility upon us all not to ignore that golden age in which those qualities are instinctive is gravely urgent.

Experimental and Play Schools

It is encouraging to realize the recognition of this responsibility in the number of experimental schools springing up all over our country and other countries, in which the child from two to six is being studied from many aspects, and intelligent efforts made to conserve the child's instinctive play spirit and guide it into channels

that will make the acquiring of fine health habits, physical, mental and moral, of great and lasting interest to the child. There are countless parents who are not seeking to be freed from or deprived of their own responsibilities but who are most anxious to be helped to give their children the best proper sanitary surroundings, the proper food, rest, sleep, play, sunshine and fresh air, children of their own age to play with, and wise supervision and guidance. Many of us have neither the time to watch a little child as he experiments during this period nor knowledge to understand or interpret the signs we see. The result is that our mistakes or lack of knowledge fall heavily upon the child, and many who make great personal sacrifices for their children do not enjoy the fruits of such sacrifices because they have not the practical means of learning how themselves. From many private experiments sound public ones are springing up and we find that in 1918, under the Education Act, England established the first nursery schools for the children from two to five, "to provide for the normal physical, mental and social growth of those upon whom England's future as a nation must depend." In 1919, a nursery school was established in New York City, "which receives children as soon as they can walk and holds them until three, when they go to an affiliated school that carries them to the junior high school. In these nursery schools there is a psychologist and a physician skilled in child psychology to study the child, advise parents or confer with the family physician."

Many private groups of fathers and mothers are experimenting with play schools for this period, coöperating to provide an environment and materials for the needs of little children, and attempting to make this period count to the full for the child's development. No conventional courses of study are followed, and freedom of activity is the rule, and the children have free access to all the play material, and all they learn is in the "doing." The results of these group experiments for the little child are watched and studied with great interest because one feels certain that only by such experimentations can any real contributions to the whole problem be made. One observation seems general, that greater spontaneity and enjoyment, a greater readiness to answer questions on new material and to deal with unexpected situations, more individual initiative, result from these freer methods of the play schools.

But the hope for the great majority of little children must lie in the understanding of those nearest them, the average mother and father. The child's education begins when he is born, and for the first six years of life the parents' influence is of the greatest importance for his future. If we can fully grasp the importance of these early years in the physical development of the little child, surely we can realize the part these years play in the child's mental and moral development and the inseparable progress of physical, mental and moral well-being. The care, observation and study of babyhood is now fairly well established

in the public mind and conscience, and that was accomplished by the accumulated interests of individual fathers and mothers. The extension of this same type of care into the years of little childhood is now the interest of all those eager to help each human being to the best expression of his powers and potentialities, for his own sake, as well as for the advantage of the world in which he lives.

The education of the little child is a very individual matter. Every parent realizes that, if he is at all conscious of his child's growth. This has been the excuse for haphazard methods and the period has been filled with fruitless efforts on our part to make our children reflect *our* ideas and standards, instead of guiding and training them to express their own. There is no subject in the world upon which parents have such decided opinions as upon the bringing up of their own children, unless it be the maiden aunt's opinion of how to bring up other people's, and, strangely enough, she is right so often that she becomes a thorn in the flesh in well regulated households! The reason she is right so often is because she is basing her ideas upon the child's relations to the world he is in, rather than upon the child's relations to her. Many of us grown-ups are so busy teaching a child things that we never give him a chance to teach himself, and that is the foundation of all his education, teaching himself control of his body, of his temper, obedience not only to us and our rules and regulations for him, but to the great laws of life and health that will be

forever in his world to be reckoned with. We can discipline children until "kingdom come," but if our method of disciplining them does not lead to their discipline of themselves, we have more than wasted our time and energy: we have done irreparable damage to the child's own character development, and it is a trite saying to-day that character is more necessary to life than intelligence. How often we hear the dismay of most conscientious fathers and mothers expressed in words like these: "I cannot understand this sudden development of lack of control, and temper, or what not. He was such a good *little* child and never made me any trouble." Well, if he is normal, he should have been making trouble, and if there had been wise sympathetic understanding and guidance of him, instead of suppression and repression of him, self-control would have been well within his grasp before he entered school. Much of our stupidity is unconscious and that's one reason it is so difficult for us to recognize our sins of omission. We can *make* any little child obey *us* by threats, punishments, deprivations or by the sheer physical overcoming of the child's will, but that is not teaching a child obedience. Only as we can show the children that disobedience affects disastrously their relations with their whole world, not only with us and our demands, can we lead a child into teaching himself to obey. The old idea that we can mold a child into anything we desire if we just shout loud enough has an awful truth in it, but it is giving way to the wiser idea that by loving sympathetic

understanding of the children we can guide them into a freedom of expression of themselves that is not selfish. As physical habits of food, sleep and play are taught best at this period, so the mental and moral habits must be a part of this early education.

But as Ella Lyman Cabot¹ says, "to develop character we must not only aim but fire." Most of us turn to books for "gunpowder" of this kind because we feel a bit helpless ourselves to meet the child's many needs. I should say we not only must fire but we must fire early, if we are to help the children express themselves in words or pictures or both. Language well spoken by any tongue, whether it be English or Greek, always has the quality of melody, and all little children love the rhythmic poems of any great poet long before they understand words or associate ideas. There are books *and* books for children, and many of us need wise guidance in the matter before we, in turn, can guide our children. Books for children have suffered at the hands of commercialism just as toys have. Books to amuse and books to teach have flooded the book-stores and we have a literature of fairy tales and imaginary romance that make real life drab and stupid—stories of adventure impossibly heroic, and violent in action, animal stories, some good, some bad, and thousands of "Books of Knowledge" filled with most laudable and accurate facts that bear no relation to the child's own experience.

The big compelling appeal of pictures to-day,

¹ "Children's Reading as a Help in Training Character."

stationary in books or moving on screens, is because pictures are more real, more related to the child's world than many books that are read to him and by him. The little child begins with picture books and we must give him the best. Fine illustrators are to-day making picture books for little children so entrancing that any little child can be taught from his first picture book to love beauty in form, color and design. If the funny page of the Sunday supplement is his earliest picture book, he cannot be blamed later for lack of taste in pictures or humor. We want our children to have what we call good taste in all their later choices. Good taste is a fine lubricating oil in the machinery of life—not a necessity perhaps: the big driving complicated mechanism we call life will go on without it, but a valuable asset in making adjustments to environment which is the essence of true education. We do not read fairy stories to children because we want to deceive them but to teach them to express their own pure imagining. A little child whose imagination is entirely suppressed by a straight "fact" diet, or entirely starved by such a process, grows up into one who sees no joy or beauty in Peter Pan and never chuckles over "Alice in Wonderland." We need people in the world with imagination, with visions, with power to create in their minds dreams of better, finer things for the world and to laugh their way over difficulties. But life is not all romance. We need facts as well as make-believe on our little child's bookshelf, and we find splendid history stories with small heroines and

heroes who lived in real places and who did real things. When Mrs. Hyde drew from out the dusty record of old Deerfield, Massachusetts, the histories of little children who lived a long time ago, who were captured by the Indians in the massacre of the village in 1704 and carried away to Canada, little children who laughed and played and cried in the old street, she made a most real contribution to our children. The Deerfield dolls are real children brought from the long ago, with clothes to wear and toys to play with that belonged to their time, and the tiny books that tell the stories of Eunice Allen and Stephen Williams, Horatio Stebbins, Abigail Nims, and all the rest are history stories for our little children that start with the play spirit in words, in a form that every little child can see and enjoy. They are stories that start with a child's own experiences and environment and give him real adventure and facts, and imagination leads him back into a bigger, richer environment where he builds for himself new forms of his own play expression.

Bible stories read directly from the Bible are specially loved by very young children and there are many very wonderful and suitable stories to be found there, in English that is so beautiful, so simple that little children unconsciously respond to the "mighty cadences of the ages where great thoughts dwell," only they express it by calling those stories "best stories" and "the ones I love." So in our early training of the little child books can help us vitally, but in this phase of his education, as in all others, our responsibility for

a well-balanced diet is very great, and all his future book life is dependent upon our wise guidance in these first years of reading to him, of looking at books with him, of offering him the best books for his own needs.

The selection of books for the little child begins with our own reading as parents. Rabbi Wise, in that little book "Child vs. Parents," puts this truth in other words, clear as crystal and sternly true. "It is not easy for the stream of domestic influence to rise higher than the parental level." So our usefulness in these early years of a little child's character and body building will depend upon our "parental level." What has the little child a right to expect of us as parents? Surely a knowledge of him, our own child, based upon our study of him. But it does not seem quite fair to children for each set of parents to learn anew of the child's needs and interests by experimenting entirely. And study of our children must rest upon a basis of knowledge of what is available in the history of child study. This will enable us to study our individual child with his own peculiarities more intelligently. Many parents say rather complacently: "We learned a lot with our first child—our second child was not half so much trouble and did so much better." Study of your own child does not mean doing all the wrong things first and then trying the right ways. Our study must prevent just such stupid mistakes. Our children have a right to demand of us not only "virtue but knowledge," and no amount of selfish, absorbing, tender love and exquisite physi-

cal care is going to make up to any child for unintelligent handling of his mind and soul.

It has been forty-two years since G. Stanley Hall published the first systematic study of the child's mind made in America. That's over a generation ago, plenty of time for the children of to-day to have parents who know something at least of the child's mind and its relations to his behavior. And all these years scientific studies have followed the child from birth to adult life, and experiments rich in significance and results have been made. Too much of all this has been couched in a language not understood by the average father and mother unfamiliar with the scientific terms, but of late the whole subject is "coming" out of obscure terminology into its own simple natural language of daily life. The study of a child's mind and of a child's behavior is of primary importance to every father and mother, and I intend to discuss briefly some of the most interesting and well-established facts in connection with this little-child period in language which I trust will be clear to the most casual reader.

If we want to understand our little child's behavior, we must know all we can of the make-up of his body and of the way in which all the organs of his body work, the way his mind works, and the way in which he is influenced by other people. In watching him we learn that he behaves this way or that way in response to stimulus. If the bright sun strikes his eyes, he blinks and squirms to get away from the ray and his eyes water. From the moment he is born the normal little

child is constantly responding to some form of stimulation, and we have two aspects of his behavior to study. First, the things he does *instinctively* because certain nerve channels to his brains are set that way: he goes off when that combination of nerves is stimulated just as your alarm clock goes off when the right combination reaches the hour set; and *second*, the things he does because he has done them before—his *habits*. These two devices are the things we are handling when we love, train, discipline, spoil, preach to, or quarrel with, feed, put to sleep or bathe our little child. We have found in our study of normal growth and development what great strides a little child makes in these early years in his growth of body and in his body functions, and we called that relation of growth to function his power to adapt himself to living which is learning. When we are grown up, we respond directly to stimulation of a definite kind, although our response may vary greatly for any one stimulus and any one response may be produced by different stimuli! But our little child responds to everything in his environment for which he has a particular sense developed. It has been proved that at five to six months of age a baby can differentiate between red and white lights, and between odors.

We know, too, that the environment of our little child, full of different stimuli as it is, bears a direct relation to the way he behaves. It can cause him to behave in certain ways, or it can prevent his behaving in certain ways and in either

case it has an effect upon his actual growth. I remember a small boy standing by his new baby brother lost in wonder: "Mother, who taught David to swallow, cause he is swallowing, isn't he?" Yes, he was swallowing, and we know that the number of times he swallowed in a given period was determined by the amount of saliva in his mouth, and we know that if we gave him milk it would increase the amount of saliva in his mouth, which assists his swallowing of the milk and his consequent digestion of it. If we show the milk but don't give it to him and he cries, that has a bad effect upon his mechanism for supplying the necessary saliva. By the time a child is two years old all such mechanism for responding or not responding to his world of stimulation is fully set up, and it is this simple story that is the basis for the care to be given the little child.

Long before he is two he puts two and two together, as we say: he associates his mother with his food and his bath, or his father with his watch or the pencil he can pull out of his pocket; he associates heat with pain, if he has ever burned his fingers. He remembers. His sense organs help him most at first. They are his first connection with the outside world, and they are the earliest indication of the normality of his nervous mechanism—his brain and his nerves. His mind has a physical organ which is made up of tiny storehouses of nervous energy and connecting fibers which are the paths along which he discharges that energy, and this brain as we commonly call this particular part of the large brain

is connected, directly or indirectly, with every other part of his nervous system. If there is an injury to that central organ of his mind, no currents of energy come over his nerve wires and there is no response to stimulation. Lots of people seem to think that if they avoid striking a child over the head with a club, they are avoiding injury to his brain! Well, of course, they are accomplishing that, but so few grown-ups beat their children, that such negative protection for a little child does not interest us. But when we realize that by wise or unwise habit-forming, we are able to do injury to that delicate organ, then we are eager to know all we can of ways and means for training our little children.

We know that at this early age the nervous system is plastic, that we can mold and change the brain cells, that there are certain proper times for bringing certain brain centers into action and that if the time passes without being used wisely by us those centers may remain unused forever, and our child be the poorer. From birth to six years of age is preëminently the time for our child's sense training—his sight, hearing, smell, taste and especially touch, and following closely upon these, his motor activities develop, and we have the normal child who is never still, who "thinks with his muscles." And all during this period we who control the lives of little children can put the proper environment around them to which they can respond and form the habit grooves in their brains; and we can put the wrong environment around them and fail to stimulate

them, or overstimulate them, or set up wrong responses, or check the proper responses; and we can have happy, cheerful, active, skillful children or moody, irritable, sluggish, clumsy children as our results.

Left-handedness is not a habit but may be either a hereditary trait or may be caused by some slight birth injury. In either case, the child that is left-handed will more naturally use that hand because the motor centers on the right side of the brain are more keenly developed than those on the left side. Because of this it is not wise to attempt to make a left-handed child use his right hand exclusively, as that only results in less skill with his left hand and poor use of the right hand. The best method is to encourage the use of both hands, thereby preserving the natural skill of the left and adding to it the fair use of the right hand. The attempt constantly to force a little child to use his right hand causes many nervous consequences found in later life besides making the child self-conscious and unhappy to little or no effect.

But children can have good habits or bad habits, but habits they *will* have, motor, intellectual, or emotional. That fatal "first time" is of great importance in training the little child, as the particular bent given by the first few times a child responds to a situation is more difficult to change. Our first impressions count.

It has been said that a child learns more his first year of life than in any other subsequent year, and in this matter of forming habits it would

seem to be true. The physical habits connected with the child's personal hygiene are to be formed in this early period because, not only is the child more plastic in early childhood, but his plasticity is greater along the lines of muscular habits than it ever will be again, and children form their habits by constantly repeating the response to a stimulus and exercising their own nerves and muscles. But they do not gain perfection unless each repetition is followed by a satisfactory result. A very little child will accomplish more if you gain his interest and coöperation, and reward for accomplishment makes a child conscious of the goal he actually reached and gives him that desire "to do better" which is so hard to stir in him later, if it does not come early. We parents are responsible for our children's habits. We hear so often, "I don't know how my child formed this habit," as though it had descended from the heavens and struck her child suddenly without warning! We cannot discuss all the desirable habits which our children should have, but we realize that some habits are of far greater importance than others in the forming of sound characters. Certain habits can be developed later, but I think it safe to say that most of the habits fundamental to right living are formed early before a child is seven.

Obedience is perhaps the most necessary habit for a child to form if he is to live in a world of law and order, with any peace and happiness. His first lessons in obeying are the child's first knowledge of adapting himself to others, and it is

the basis of his moral life, of the life he must lead in the world around him.

When David was four, he faced one day a thoroughly exasperated mother, one who had been patient and long-suffering with his naughty disobedience. She had never spanked or switched him but had most carefully tried out all the other means. This particular day she was tired and David was particularly disobedient. So she decided the time had come for that dreaded "first time" switching. She had gone down to the garden to cut a very long but very wobbly willow switch, so soft and pliable that little pain could have been inflicted by it. She hated to strike David. He was clever and full of spirits with a will of his own. So she said rather longingly: "David, have you anything to say for yourself before I switch you?" "Yes," said David, with his eyes shining with big tears, "I don't think it's fair. You are a great big woman with a great big stick and I am only a little boy." It took a lot of time and intelligence and patience to establish their relations of good fellowship after that interview!

The aim of punishment is to develop in the child self-control, and that is not done by showing a lack of it ourselves, and to train his will, and to do this we must be sure that the punishment conforms to his sense of justice.

Self-control is another great fundamental habit that these early years must bring, and it is dependent first upon us grown-ups. The little child has slight chance of developing self-control unless

he sees it constantly in those around him. How often we hear the statement made by anxious fathers: "That child has gotten way beyond his mother. I simply had to step in and make him understand that when we spoke we meant just exactly what we said." A good deal has gone "under the bridge" by the time that statement is made. There has evidently been a strenuous effort made to control the child but that is not teaching him to control himself. To be able to make a child do what we want him to do, because he loves us and is loyal to our wishes, is not necessarily teaching him either obedience or self-control, and we lay up for ourselves a good many surprise parties later on when the child is meeting a world where neither his affections nor loyalty are especially involved.

The wise kindergarten teacher has learned to more or less dread the youngster who is brought proudly to her by an adoring mother with a perfect record of obedience and self-control behind him! Many a mother would not know her own child a week later, if she could have an unobserved peep at him. The test of all our training and discipline of our children in this early period is whether the child gets a *grip on himself*. There are countless methods recommended, rules and regulations suggested, but what we need first of all as parents are keen insight, sympathetic understanding and some old-fashioned healthy *awe* for the significance of these early years. If we study our children and know their capacities as well as their limitations, we'll

develop a system that will fit our own problems. It has been said, "There are no misfit children but there are misfit homes and schools and parents." Rabbi Wise gives us another wonderful story for this point. "A seven-year-old colored boy in a children's court in answer to the question, 'You have heard what your parents have to say about you. Now what can you say for yourself?' answered, 'Mistah Judge, I'se only got dis here to say, I'd be all right if I jes' had another set of parents.' "

For a third great fundamental habit to be formed during these early years, *loyalty* is perhaps our best choice, for in the life the child leads, loyalty to individuals, to organizations and to ideas runs like a golden thread through all the complex designs of environment and circumstance. The cherishing of a little child's spirit of loyalty is the best groundwork for forming his habits, physical, mental and moral. His loyalty to us, his parents, is natural and always strong whether we are worth it or not, and in guiding that loyalty into safe and sound channels we can affect the child's standards and ideals most acutely. The habit of *service* to others ought to be encouraged in the smallest child as that habit will lead to so many others needed by all of us if we are to fit into our environment or to have any constructive ideas for changing our surroundings. In his play and in his help in little homely things a child can be given fine ideals of service, and it is encouraging to those who study children to find that the little child without the desire to help is hard to

find. He is usually eager to do things for every one and needs only a chance to develop his spirit of service. Many children are unconsciously trained in selfish, helpless habits, because we grown-ups are too busy, too much in a hurry, too impatient and too blind to let the children serve. It is easier at the time to do things ourselves than to wait for the uncertain but eager little hands and feet of the children who long to help.

In our study of the little child we find that he brings many instincts with him into the world that will help so much in his development of all these habits, if we will but recognize these instincts and help him to use them. Our characters, after all, good or bad, are the sum total of our habits, those tendencies that become fixed as we develop. The religious tendency in little children needs careful training and it can be a very vital force in the development of a child's thinking and later his use of judgments. This religious impulse is of great importance in teaching him the power of discrimination between right and wrong. Religion has been defined as a living relationship by men with God. If we want our children to have a real relationship with God or man we have got to train them in matters of morals and religion just as we do in all the other aspects, physical and mental, of their life. In this two-to-six period when the individualistic aspect is uppermost, God is a very real person to the small child. To be sure, the average child's ideas of God are more or less just a glorified adult, a sort of "splendiferous Santa Claus" with whom they have a very

real relation, but in almost every instance God is some bigger, better person who looks after them, and, if they are good, rewards them, and if they are naughty He is sad. It is wise to use this conception in our rewards and punishments of the little child, because there is nothing abstract in the little child's ideas of God, and we can train a child not only to want to please God but to reach that high ground of wanting to do the right thing regardless of rewards or punishments.

Children differ widely in the various appeals necessary to interest them. Some need the intellectual, some the emotional, but all little children need an atmosphere of love, trust and harmony. God is a very real refuge to many little children and we must expect very direct expression of that. "Dear God, help me to be a good boy and don't let father yell so at the telephone," shocked one quick-tempered parent into more self-control. "Has every one gone out and left you all alone, Mary, dear?" "Yep, all but God," answered Mary, "and I wish He'd go too!"

David, aged five, had succeeded one bright day in playing all morning without once being called in for discipline. His naughtiness heretofore had consisted in climbing down to a snowy creek bed to play and getting his rubber boots full of icy water. When congratulated upon the success of his morning's play by an adoring aunt, David answered: "Well, I was just scooting down to the creek once and Jesus Christ just butted in and said, 'David, don't you do it or you'll have to go in,' so I didn't."

These stories illustrate direct efforts on the part of some active little brains to bring God quite within the limits of their own experiences, and as that is the basis of all reality in this as in other things, we should neither laugh at these efforts nor suppress them but treat them with respect. The little child's ability to believe the most fantastic ideas of God and the universe is not his limitation but rather our great opportunity to help him to push his level of conduct up to that highest point where it will be regulated by an ideal regardless of praise or blame.

Another great basal instinct in human beings is that of sex, and it is one of which we need not be ashamed. Many parents hate to hear the word and connect it with abnormality if it is suggested in relation to a little child; but this attitude is wrong and only throws the shadow of the old ignorant attitude of tabu of the subject across the pathway of a normal healthy instinct. The little child of three, four or five who has a definite idea of God is quite able to have a definite idea of himself, and his early questions should be answered simply and truthfully. Matters of sex can only assume their proper relation to life if they are met in this spirit, and in this little-child period, fables and fairy tales, nature and animal stories can all be interwoven with fundamental ideas for his sex life that will stand the test of later experiences.

The normal little child is not conscious of sex and is not ashamed of his body or any of his physical functions until customs and tabus governing

such matters teach him shame. That word is badly used and is usually associated in the child's mind with some wrong act. It would be wise never to allow the word to be used in this connection. We hear: "You ought to be ashamed to run out without your clothes on. You are too big." Quite the wrong appeal to the little mind. The body is nothing of which to be ashamed and such methods result in unnatural repression and abnormal curiosity. To teach the little child a personal reserve in these matters is not to teach him shame, but reverence and respect for the intimate things in his life that are "just shared with father and mother" and no one else.

All these primary mental habits are just as important as the physical habits in the little child's development, and the early formation of all the mental mechanisms makes this two-to-six period the great determining time. A child's behavior is the expression of his physical and mental health or ill-health, normality or abnormality, and in the little child of this period two important factors dominate the individual situations, how he feels physically, and what he sees and hears around him. In caring for his mental health, we must know more than his bodily mechanism, important as that is. We must take into account his instincts and emotions, his whole personality, if, as Walter Pater said, our children are to have "that serenity of mind in which alone the business of the spirit can be done."

CHAPTER XI

MENTAL SNAGS

Behavioristic Psychology of the Little Child

A LITTLE girl of eight was asked to define the human body in her first examination paper in physiology. She wrote: "The body is divided into three parts. Your head, where the brains are, if you have any; the chest, which is a large box containing your heart and something else, I forget what, and the stomach, where the vowels are. They are *a, e, i, o, u*, and sometimes *w* and *why*." Many of us are just about as confused when we finish a book like this. We have a lot of things in the wrong places and the "sometimes *w* and *why*" don't get in at all, and we put the book deservedly aside because it failed to discuss our particular child, that child of ours that isn't normal and healthy but is a half a dozen things he ought not to be. We know there are backward children and forward children, nervous children and naughty children, and lots of other kinds on the bookshelves, but our difficulty as parents lies in putting our children away into any of these classifying pigeonholes. Most of us love our children concretely, not abstractly, and our love for our children is often our excuse for lack of

success in handling their problems. It really isn't our love but our pride that blinds us to the intelligent understanding of ways and means to help our children over the difficulties. It is a serious matter when the normal child draws a backward set of parents, but it is much worse when the backward child draws such parents!

Our child may be a nervous child, a little child that very definitely shows the easily recognized nervous symptoms, unstable emotions, fits of anger, temper spasms, peevish spells for no apparent reason, restless sleep, fears of all kinds, exaggerated attitudes, such as refusal to eat certain foods and vomiting at will if made to do so, refusal to urinate, to attend to bowel movement, stammering and stuttering, handling of sex organs, tantrums, intense devotion to people, extreme jealousy of a little brother or sister and a long list of things we can all make if we know nervous children.

The first step in handling the nervous little child is to find out by study of him whether he has been nervous from the moment he was born, or whether he grew to be nervous under the environment in which you placed him, or whether you have made him nervous by bad or stupid handling of his nervous system. Many people expect the doctor to find that out by one examination in his office! No one but the ones daily living with the little child can find out this most vital information. Dr. Mac Fie Campbell says: "Gastric symptoms may be either inability to digest

food or inability to digest a situation." We must "digest this situation" if we are to gain results.

We have learned how impressionable the nervous system of a healthy child is. If we have a nervous child we can multiply the same impressions made upon his nervous system about ten times. And we must always remember that all these nervous expressions we see are the result of *impressions* made either by stimulus, lack of stimulus or wrong stimulus upon the child's nervous system. Our little child has two powerful factors in his natural equipment, imitation and imagination. If he has a distinct nervous inheritance, both these factors are going to be capable of exaggerated development. I knew a little boy of three, child of extremely nervous and high-strung parents, who so brooded over the death of a baby brother, as he saw the adults around him doing, that he imagined all sorts of things, suffering from sleeplessness and intimidating his parents by this method into letting him have one of them with him always. If he did not want to do anything, he would immediately set his mind to working upon some gruesome or impossible situation which would alarm his parents and they would give in to him. Anything that he wanted to eat he would eat rapidly and well; anything he did not like he would take hours to consume. He had an unusual mental capacity, and it was only by a most friendly loving appeal to his sense of right and justice, years later, that this selfish nervous instability was conquered by himself.

The most important characteristic of the little

child's nervous system is its adaptability, and for us grown-ups that is our greatest ally in handling any child, and particularly the nervous child. If we will take the time and have the patience to study the way in which he meets specific situations, we will then be in a position to help him adapt his nervous system to the normal, healthy demands made upon it. We won't "cure a child of fear by scaring him," or teach a timid child bravery by constantly telling him he hasn't any pluck, or cure a little child of night terrors by taking him to see thrilling movies with daring hairbreadth escapes just before we put him to bed. A wise person said that "parental discretion was the better part of moral education." I am sure it is the secret of the parent's care of the nervous child "to do the things we ought to do and to leave undone the things we ought not to do," and we'll never reach that high level of parental behavior unless we first know what to expect of our little child, *why* to expect it, and when to expect it.

Our little child may be an exceptional child, not as we fond parents use the word, but as students of the child's mind use it, the children who, because of a physical or mental handicap need specially adapted care and education. We have always been quick to recognize certain defects early in childhood. If the little child's eyes are affected or his hearing isn't normal or his heart action is wrong or either birth or accident has crippled him in some definite way, the home usually gives that child an almost overwhelming

amount of attention and protection and care. Often much of this is unwise and accentuates the defects in the child's mind and in the world where he must live, and his disposition is spoiled by over-indulgence and his character development poor because of much mistaken kindness. None of these handicaps in the little child can excuse us from failing to fit that child for the life he must meet as he grows up. We can make timid parasites out of them or self-reliant, independent souls who will make splendid contributions to life in spite of these handicaps.

These physical defects are comparatively easy to recognize, but the exceptional children with defects of mind are more often unnoticed as such. As we know, the extreme cases of idiocy, imbecility and delinquency are more commonly known and recognized, but to discover those lesser problems is more difficult, such as: the child who is exceptionally bright, who is so far ahead of the average normal child at three that the usual methods of caring for him and stimulating him will not do and we must give him more opportunities than we offer to the average child; the precocious child must be held up to high standards if his unusual ability is to count, and the dull child must not be made fun of or punished and nagged at, but carefully studied in order that we can know his capacity and give him tasks to do that will be within his reach and the accomplishment of which will be encouraging to him to go on. To crowd a little child along who *is* dull is apt to increase the dullness and make his slowness

more confusing. Time and patience and love are these children's best teachers.

But our problem may not be any of the above classified difficulties. Our little children may meet successfully the intelligence tests, the well-known Binet test, of his response to ideas, the normal motor tests, and all the so-called moral tests, those indications of a little child's response as an individual to the life around him, and yet we may see things in his behavior that trouble us because we know that if they continue, his usefulness in life will be hurt. Some children are intensely selfish; some lie, early and late; others fight and are cruel to other children; some steal systematically at six; some bully; some boast constantly; some destroy everything they play with; some have poor memories, others lack entirely any imagination; some are full of fears, while others have the bravado of fools; and any or all such children may be physically normal with good physical habits! What can we do about it? *Is* there anything we can do, any attitude we can take, any knowledge we can acquire, that will give us any assurance of proper results for the child?

We began our study of this little child period with certain known physical expectations based on a knowledge of the physical make-up of the child. We must do the same now in relation to these mental snags that cause us so much unnecessary and necessary worry. What is the mental equipment the normal child brings into the world with him and what may we expect the development of this mental equipment to be? That

is a fair question and years of study and experimentation by those interested in child development have given us many conclusions which are stable and workable.

The little child has certain instincts he brings with him—perhaps they are those “trailing clouds of glory,” if we but recognized them as such. Upon these instincts we build the child’s habits. The instinct of hunger and of pleasure are fundamentally important because they are related directly with all we may expect. The little child wants things—food, rattle, dolls, picture books, mother, brother, father, and when he gets any of these things he wants pleasure from them, and if he does not get pleasure but pain, he cries. This, in simple terms, is our ground-work. Every normal little child collects things—buttons, string, stones, small and shining or big and rough, spools, anything small that his tiny fingers can grasp. We build upon this instinct his whole future sense of ownership and the ideas of the ownership of others. We do this by letting him have some things that will not harm him. If we fail to do this, if we repress this instinct by taking things away from him, we make his sense of ownership more difficult to adjust. He wants things and he wants them for his own. It is all selfish at first. He wants what he has entirely to himself, but repression of this does not result in unselfishness or regard for the ownership of other people. He can only learn that by being permitted first to develop his own sense of ownership. When he learns to care for his own things, then his sense

of responsibility develops. The greater his sense of responsibility for his own possessions, the harder he is going to fight to preserve them. Property is the first thing little children quarrel over. All mental development comes through some form of activity, and we must let a child learn for himself that certain things are his to possess, that we won't weaken his sense of other people's ownership by giving him things one day only to take them away from him the next. Stealing in later childhood is often caused by the starvation of this instinct in young childhood. No child is going to appreciate the property rights of other children if he has never been allowed any property rights of his own. A little child has to be trained in developing this tendency to collect and own possessions because he needs to relate this instinct of ownership with all his future contacts. He learns that it is much pleasanter to share his ball with the boy in the next garden; he is happier and it is more fun, and slowly he learns that possessions most worth having are those we share with others, be they material, intellectual or spiritual. So we find that this instinctive sense of ownership of property is a big factor in developing his mind.

"What am I to do with this child? He is only four and he has told me a lie." The mother looked anxiously into the doctor's face. "Madam, I cannot answer your question unless I ask *you* one. 'Has this little child ever been conscious that *you* have lied to *him*?' Children are constantly looking for ways and means of meeting situations as

they arise, and they watch older children and grown-ups much more keenly than is often realized. If we tell "stories" to them and they discover it; if we constantly break our promises to little children, they will learn quickly to imitate. If we are quick to punish and slow to listen to childish explanations, any bright little child is going to have initiative enough to protect himself with a lie. Fear is a weak and vicious bridge between us and our children, and lying that is the result of fear of punishment only is the fault usually of threatening, bullying, quick-tempered parents. The little child who lives in a more or less unreal and imaginary world should never be accused of a lie, quickly or carelessly, but he should be given time to extricate himself if possible, and if he cannot his punishment ought to be directly related to his lie, the result of his wrong doing clearly shown to him.

Fighting is one of the strongest tendencies of the race. McDougall says: "The instinct of pugnacity has played a part second to none in the evolution of social organizations." So let us, as parents, expect to find it in our little children, and instead of fighting it, train the child to put his fighting energies into efforts that are constructive for him and for others. Give the little child opportunity to work off his extra "physical steam" and use his vivid imaginations to give him "giants to fight," his own faults first, and then by his help the things that go wrong in his own small world. Many a little child stops fighting his brother if he is given some substitute, "some-

thing hard to do for mother that will help her." Teasing is sort of a special form of fighting and it is a tendency that is best discouraged because it is usually quite unsportsmanlike in form. Teasing is usually directed against some one younger and less able to protect themselves, and the evident unfairness of teasing usually causes unjust situations to develop. It is but a step to bullying which has never been granted any place in the training of any age. Many fathers believe that teasing, or more or less bullying, of their small sons develops manly qualities. The little child gets angry and fights back—the whole process more or less amuses the adult, but it does not teach the child desirable qualities. We want to teach our children the spirit of fair play, and bullying is never based upon that spirit. This fighting instinct in the child often shows itself in extreme boastfulness and self-assertion. A certain amount of these qualities is natural, but when it continues to grow in unpleasant aggressiveness, we must deal with it.

The truly great mother or father is not only the one who succeeds in doing great things for his child but in doing all the little things for a child in a *great* spirit. The great spirit necessary for the little child's growth in all things is a spirit of faith in him. To have that spirit we must have patience with him in all things, realizing that only in that way can we give him his chance to be all that he is capable of being. This glorious little child period gives us grown-ups so many chances to help him which, if we fail to see, are gone for-

ever. We must not miss our chance and we must give him his. Junior was but five. He was caught in the pantry with his pockets bulging with cookies after he had been told that he had had enough for that morning and that he must keep away from the cooky jar until afternoon. His aunt did not know what to do. His mother was not there. So she appealed to Junior, saying, "I don't know what to do with you. I told you not to do this and you have disobeyed. You are not my little boy and I do not like to punish you. What would your mother do?" Quick as a flash Junior's adorable confident little voice rang out, "Oh, my mother? Why, mother, she'd give me another chance."

Give the little runabout child his chance and "add sunlight to daylight by making the sad happy and the happy happier."

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